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Address

IMAGINATION AND IDEALISM IN THE MEDICAL SCIENCES *

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The presidential invitation in response to which I am about to address you to-day was welcome to me because it offered a rare chance to express some views of medical progress which I think are too seldom presented to the student. I have in mind the influence of imagination and idealism on the growth of medical discovery. Vividly recalling, as I do, the experiences of my own student days, more than a quarter century past, I fancy you as coming to the acquisition of the myriad facts of medicine with little to tell you of the intellectual forces and historical sequences by which those facts have emerged. If this surmise be correct, it follows that you incline to take a static rather than a dynamic view of the nature of scientific medicine, in the sense that you regard medical lore as something much more fixed than is actually the case. In reality, our science is fortunately plastic, constantly subject to revision of its facts, and ever ready to welcome new interpretations of old facts as well as new discoveries, both great and small. This very plasticity it is that makes progress attainable and fascinates our minds. But our text-books and our lectures are necessarily conservative and dispose us strongly to the notion of fixity of facts, making our minds statical in conception. I would like to dispel, in a measure, this retarding conception by telling you something of the ways in which gifted and trained minds have enriched the medical sciences by significant discoveries. And of the qualities underlying such discoveries I would emphasize especially the rôle of imagination and idealism.

The fine humanitarian aim of medicine always has been and always will be one of the features that make men love to practice the art. And the idealism that delights in the relief of human suffering and disability will remain alive so long as the healing art itself. But we must not blind ourselves to the fact that this very attitude of eager desire to help our fellows in distress is a source of weakness as well as a pillar of strength. For he who would answer the calls of the sick must resort to direct methods and must generally tread the paths of the obvious. He has not time to turn aside to the indirect ways of winning the citadel, nor, indeed, is he likely to be in that frame of mind which urges to such an approach; he is preoccupied with the crying needs of the suffering or dying man committed to his charge. Yet it is growing every day clearer that the progress of the medical sciences depends in a remarkable degree on discoveries made by indirect methods—that is, by methods not looking to the immediate relief of disease.

These discoveries are made chiefly by men who, while in deep sympathy with the humanitarian aims of medicine, nevertheless find time to turn aside to studies and experiments from which the active practitioners are, in general, excluded, by the circumstances of their lives and the intensely practical nature of their vocation. There was a time when the alert physician or surgeon, with little or no training in the experimental method, might make important contributions to knowledge by following rather evident suggestions derived from the study of patients. The Romans, operating for stone in the bladder; Paré, using the ligature to check hemorrhage on the field of battle; McDowell, successfully removing ovarian tumors, give us examples of great advances along rather obvious lines of development. To-day the chances for significant progress in such evident directions, although not exhausted, are far less frequent. The golden nuggets at or near the surface of things have been for the greater part discovered, it seems safe to say. We must dig deeper to find new ones of equal value, and we must often dig circuitously, with mere hints for guides. Our most effective tools are to be found in the experimental laboratory, where the fundamental sciences, physics and chemistry, come to the aid of physiology, biology, pathology and psychology. I should like to tell you of some of the many instances in which these sciences have come to the succor of medicine and have brought her riches of knowledge unattainable had she been limited to resources belonging to the accumulated experience which makes up the accepted material of medical teaching. If I incidentally say something of the personality of the men who have been the living instruments of this progress, it is in order to give you occasional glimpses into the workings of some of the most original and productive of minds.

I like to think of medicine in our day as an ever-broadening and deepening river, fed by the limpid streams of pure science. The river at its borders has its eddies and currents, expressive of certain doubts and errors that fringe all progress; but it makes continuous advances on the way to the ocean of its destiny. Very gradual has been the progress of its widening and deepening, for it is a product of human ingenuity and artifice, and only skilled engineers could direct the isolated currents of science into the somewhat sluggish stream of medical utility. The names of some of the greatest of these engineers are familiar to you—Vesalius, Harvey, Malpighi, John Hunter, Claude Bernard, Helmholtz, Virchow, Metchnikoff, Pasteur, Lister, Koch, Behring, Ehrlich, Emil Fischer, Weigert, Wright, Theobald Smith, Flexner. Different as have been the achieve-

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* Considerations of space compel the abbreviation of this article in THE JOURNAL. The Complete article is in the author's reprints.

ments of these men, there are some qualities of mind and of heart which nearly all of them have shown in ample measure, and of such qualities none are more evident than imagination, or play of fancy, and personal idealism, using the latter term to mean a readiness to make sacrifices for the sake of lofty achievement. And I think we are quite safe in making the generalization that the discoveries for which we hold these thinkers in honor would have been impossible but for the exercise of these qualities. If this be true, the fact furnishes us with a clue to present tendencies in medicine and shows us to what sorts of gifts we have to look for the significant advances of the future. I, therefore, hope to make good my generalizations by a series of examples.

If we look over any list of the names of the makers of modern medicine, we shall find that they may be classed in two main and definite groups, according to the intellectual trend for which they stand. One group holds the men who look at the problems of medical science largely from the standpoint of structure and arrangement. They have the instincts and interests of the morphologists. They represent anatomy, embryology, pathological anatomy and histology. They have usually been men of powerful and logical minds, craving the positive, the definite and the attainable, either shunning somewhat the speculative aspects of science, or moving uncomfortably in the midst of ill-defined or challengeable facts. In this list belong Vesalius, von Baer, Bichat, Virchow and Weigert, who represent with maximal distinction the group of investigators with dominant morphological tendencies.

In sharp contrast with this definite type stands the second group, made up of men whose interests lie in the study of function, rather than structure, and whose minds, far from being dismayed by the speculative aspects of their studies, invite such speculation so long as it is severely controlled by frequent appeals to facts won by experiment. The members of this small group are dynamically minded, highly imaginative, delighting in the play of forces. They are essentially experimentalists, and their thoughts in leisure hours, as in the hours of work, turn always restlessly and uncontrollably in the same direction—to the planning of new experiments designed to answer the questions uppermost in consciousness, questions having nearly always to do with the phenomena of living beings. Claude Bernard, Helmholtz, Pasteur and Ehrlich are the unexcelled prototypes of investigators of life-phenomena in medicine, and we shall not go far astray if we fancy them as spirits inspired by

> "All that is great and all that is strange
> In the boundless realm of unending change."

We have also, I think, to recognize an intermediate group of great investigators who, while highly trained in a morphological way, have shown also a deep and productive interest in the functional aspects of organized nature, without, however, attaining the highest levels of achievement in thought on the dynamical side of medical research. In this category we may place Harvey, Malpighi, John Hunter, Johannes Müller, Cohnheim and Robert Koch. And I think we may safely add that most modern investigators, educated under the influence of the strong trend to physiological thought, belong in this intermediate position.

The examples of medical discovery which I shall first bring to your notice I shall select from the first and intermediate groups of workers, reserving the illustrations from the second group for later consideration.

The first great morphologist of modern times is Vesalius, whose claims to recognition rest not merely on his masterly and precise description of the parts of the human body, but also on his abrupt departure from the Galenic traditions and teachings, forced on him by the objectivity and sincerity of his studies. While we must regard the work of Vesalius as evidence of intellectual and logical power, it would be an error to credit him with the highest type of imagination or with elaborate esthetic reactions. The self-willed, clear-thinking man won his triumphs more by force of character and unswerving purpose than by creative intellect; and we see this type of worker repeated in some of our greatest modern anatomists, as also in some fields in which the experimental method is prominent.

The gain in scientific method, initiated by Vesalius, was fixed and established in England by the spirited, penetrating and imaginative William Harvey, whose monumental work proved that all the blood in the body travels in a circuit impelled by the beating of the heart. That a hugely skilled anatomist should have made this physiological discovery is significant evidence that studies in structure may stimulate a labile mind to serious investigation of the functional side of organic nature. Probably the work which Harvey did with his master, Fabricius, at Padua in the anatomy of the vascular system stimulated his interest in the discovery of experimental methods which should expose the true uses of this elaborate mechanism.

The lofty intellect of Harvey was linked with a generous and idealistic nature. His portraits show a formation of head and face that reminds us of representations of Shakespeare. Like Hunter and Darwin, he had the virtue of being extremely slow in publishing. He forgave his many antagonists, notwithstanding the troubles they brought into his life. He says:

> **I would not charge with wilful falsehood any one who was sincerely anxious for truth, nor lay it to any one's door as a crime that he had fallen into error. I am, myself, the partisan of truth alone: and I can indeed say that I have used all my endeavors, bestowed all my pains on an attempt to produce something that should be agreeable to the good, profitable to the learned, and useful to letters.**

More than a hundred years after the death of Harvey there emerged from obscurity a Scotchman, John Hunter, of such power and versatility as to make him a worthy intellectual successor of the great Englishman. We may take him as our second example of an investigator of our intermediate group, combining the interests of morphologist and physiologist. One example—a celebrated instance—will illustrate the point I wish to make. It was in Richmond Park that Hunter saw the deer whose growing antlers awakened in his mind a singularly fruitful physiological question. What would happen if he shut off the blood-supply of the antler on one side by tying the corresponding carotid artery? Experiment showed that the antler lost its warmth and ceased to grow; but for a short time only was there this check to growth. After a time the horn warmed again and grew. Had he failed to really obstruct the blood flow in the artery? No. Examination showed the carotid to have been securely ligated. Whence, then, came the blood essential for the antler's growth? Through the neighboring arteries that had grown distended, through what we now call the collateral circulation. So was the fact of the collateral circulation revealed. The thoughtful and logical mind of the practical surgeon soon found an important application of this discovery to human pathology. No one had dared to treat aneurism by liga-

tion for fear of causing gangrene. But the existence of a collateral circulation held out a prospect of keeping the parts alive despite the ligation of an important artery. The first trial of the new method on a popliteal aneurism was successful, and the Hunterian operation, as you know it in surgery to-day, came into assured existence. An unimaginative man could not have made this discovery in this manner. Yet Hunter belongs to the logical, independent, matter-of-fact type with fancy well controlled, rather than to the dreamers and poets of science. He was a rough diamond, with an intensely objective nature, and he had corresponding limitations. He is said to have rebelled against the classical teachings of Oxford. "Why, they wanted me to study Greek. They wanted to make an old woman of me!" And when twitted with his lack of knowledge of the "dead languages" he said of his critic: "I could teach him that in the dead body which he never knew in any language, living or dead." The idealism of Hunter showed itself in devotion to work and in fortitude in the adversity of ill health.

I wish now to invite your attention to our second type of investigator—the essentially dynamical or physiological discoverer. The group, as I see it, is a small one. It includes Claude Bernard, Louis Pasteur, Hermann von Helmholtz and Paul Ehrlich.

An admirer said sententiously of Bernard: "He is not merely a physiologist; he is physiology itself"; and the saying has the merit of reminding us of the breadth and depth and originality of his researches. With equal skill he worked at the physical and chemical bases of physiology; and we owe to him our knowledge of the glycogenic function of the liver, the enzymes of the pancreatic juice, the vasomotor system of nerves, diabetes from puncture of the fourth ventricle, besides many minor discoveries and researches and a masterly correlation of the general facts of animal and plant life. Bernard was one of the founders of modern pharmacology. He also foreshadowed in a singular manner and under singular circumstances the modern conception of soluble ferments in micro-organisms, a view which unfortunately brought him into an unpleasant antagonism with his life-long friend, Pasteur.

The research that most fully shows the controlled imagination of Bernard is that which, extending over years, culminated in the discovery of the glycogenic function of the liver, a discovery of the very first significance to physiology and pathology. We know the steps which led him to this discovery, and in retracing these steps we get an edifying glimpse of the workings of Bernard's fertile mind. His ambition was to follow the three great classes of foodstuffs, carbohydrates, fats and proteids, through the organism. He soon felt the necessity of limiting himself to the fate of the carbohydrates, which, besides seeming relatively simple to study, especially attracted him on account of their mysterious relation to diabetes. The first step in the research brought out the fact that cane-sugar, when acted on by gastric juice, undergoes a transformation which adapts it for absorption and utilization by the tissues—namely, a change into dextrose (glucose). He knew from the experiments of Tiedemann that starch is changed into dextrose in the digestive tract before absorption. Bernard asked himself what was the fate of this dextrose. He proposed to trace the course of the sugar from the digestive tract, along the portal vein to the liver, from the liver to the lungs by way of the right heart, and finally from the lungs through the left heart to the various tissues. His idea was that at one of these stations the dextrose disappears, is destroyed or in some manner changed. "If I am able," said he, "to suppress the activity of this station, sugar will accumulate in the blood and a condition of diabetes will be brought about." Here, then, was a highly interesting enterprise. The first thing to do was to feed a dog freely on carbohydrates, kill it at the height of digestion and examine the blood leaving the liver by the hepatic veins to see if any sugar were lost in the liver. Please note that Bernard was helped in this search for sugar in the blood and tissues by the cupric sulphate test for dextrose, just introduced by his friend, Barreswill—a very material help. Sugar was found in abundance in the blood of the hepatic veins; therefore, the liver was not the looked-for place of disappearance of dextrose. "But how do I know," thought Bernard, "that the sugar which I thus find in the hepatic vein is the same sugar as that which I introduced into the portal blood through the food?" To get an answer, Bernard fed a dog on meat only, knowing by experiment that no dextrose would then be present either in the digestive tract or in the portal blood. Then he examined the blood of the hepatic vein for sugar. Great was his surprise to find it loaded with dextrose. His keen intelligence at once drew the correct inference—that the liver is a sugar-making organ and makes sugar out of something which is not sugar, and, furthermore, that within the liver lies the secret of diabetes. Bernard now made a variety of experiments to test the correctness of his inferences. He soon found that sugar was contained in a simple decoction of the liver and that this sugar was dextrose, capable of fermentation and responding to all the known tests. But Bernard did not stop here. His fancy urged him to seek the substance in the liver from which the sugar is produced—the "glycogenic substance" whose existence was inferred from experiment. And in time he isolated the substance which we know to-day as glycogen.

Here, then, was a great triumph of the experimental method in the hands of an imaginative, critical and highly skilled technical worker. The completeness with which the discovery of the glycogenic function of the liver was worked out makes it a model of physiological research for all time. Moreover, the facts elicited by Bernard in this research possess a very broad bearing. They show that the liver has a function as important as, but far less obvious than, the secretion of bile—the first example of an internal secretion. And they prove that animals as well as plants can build up carbohydrate material—glycogen—by means of their own tissues. Finally Bernard very clearly showed that, while the production of glycogen from sugar is a vital act, in the sense of occurring only under conditions of life, the converse process, namely, the formation of sugar from glycogen, is independent of living tissues and may occur as the result of the action of a ferment in the blood.

As Sir Michael Foster said most aptly:

> It is in the putting forth of the hypothesis that the true man of science shows the creative power which makes him and the poets brothers. His must be a sensitive soul, ready to vibrate to Nature's touches. Before the dull eye of the ordinary mind facts pass one after the other in long procession, but pass without effect, awakening nothing. In the eye of the man of genius, be he poet or man of science, the same facts light up an illumination, in the one of beauty, in the other of truth; each possesses a responsive imagination. Such had Bernard, and the responses which in his youth found expression in verses, in his maturer and trained mind took the form of scientific hypothesis.

That Bernard well understood the value of imagination in research and also its dangers is well shown by his admirable and memorable advice to his pupils:

> Put off your imagination as you take off your overcoat when you enter the laboratory; but put it on again, as you do your overcoat, when you leave the laboratory. Before the experiment and between whiles, let your imagination wrap you round; put it right away from yourself during the experiment itself, lest it hinder your observing power.

Let us now bring to your attention some features of the mental life of another great physiologist, Hermann von Helmholtz, representing a very different phase of physiology from that developed by Bernard. Bernard, though accomplished as a morphologist and skilled in mechanical physiology, leaned strongly to the chemical side. He was essentially the animal experimentalist. Mathematics played only the most simple rôle in his researches. Helmholtz, on the other hand, approached physiology on its physical side, and, one may remark in passing, with a quality and amplitude of success unequalled before or since. He used the higher mathematics constantly and they proved keen tools in his hands. Although an experimentalist of the very first order, Helmholtz was not an animal experimenter except in a very limited way, the nature of his themes making vivisection for the most part unnecessary.

Even as a child the mind of Helmholtz was unconventional and inquiring, bent on understanding what was going on about him. The boy cut his own path through the mazes of unassimilable educational offerings. His tastes were definite. He obtained notions of geometry from the blocks with which he played, surprised his mother by experimenting on her linen with acids, made telescopes with spectacle lenses, read books on physics and enjoyed greatly his walks in the country. At the university he assimilated ideas with great ease and showed an increasing interest in physics, which he wished to follow as a profession. But his prudent father urged him to study medicine as a surer means of livelihood. And most fortunate it was for medical science that the gifted young man was willing to take up medical studies, for there arose in him a deep interest in the problems of physiology, destined to bear rich fruit. The duties of an army surgeon took only part of his time and the rest he gave to physics. His original researches began at the age of 21 and continued through a long lifetime, covering an extraordinary range of topics in an original and masterly way. Helmholtz contributes to minute anatomy, lays the foundations of physiological optics and acoustics (with all that this means for esthetics, psychology and metaphysics), gives to medicine the specific and golden gift of the ophthalmoscope, enriches physics with an imperishable statement of the doctrine of the conservation of energy and with original studies on vortex motion, on hydrodynamics, on electrodynamics, on dynamics, on meteorological physics. He broadens chemical theory by the influence of his vortex motion hypothesis and, in a somewhat incidental way, brings new theoretical conceptions into the realm of pure mathematics. As students of the psychical forces that have fertilized modern medicine it is interesting for us to note that Helmholtz disclaimed any intention to be practical in his work. If the themes that happened to absorb his attention led to practical and humanely useful results, he was pleased; but he seldom pursued a practical aim simply because of its utility. He chose his themes because they promised to be intellectually satisfying, giving little heed to the nature of the probable outcome. He framed his experiments so that Nature would have to answer "Yes" or "No" to his questions, thus furnishing him with definite results.

The story of the invention of the ophthalmoscope illustrates the mental processes of Helmholtz in working out an idea. He did not set out to devise an instrument for studying the retina and the ocular refraction, but as he proceeded these important possibilities ripened into definite objects. He says:

> I was endeavoring to explain to my pupils the emission of reflected light from the eye, a discovery made by Brücke, who would have invented the ophthalmoscope had he only asked himself how an optical image is formed by the light returning from the eye. In his research it was not necessary to ask it, but had he asked it, he was just the man to answer it as quickly as I did, and to invent the instrument. I turned the problem over and over to ascertain the simplest way in which to demonstrate the phenomenon to my students. It was also a reminiscence of my days of medical study, that ophthalmologists had great difficulty in dealing with certain cases of eye disease, then known as black cataract. The first model was constructed of pasteboard, eye lenses, and cover-glasses used in the microscopic work. It was at first so difficult to use that I doubt if I should have persevered, unless I had felt that it must succeed; but in eight days I had the great joy of being the first who saw before him a human retina.

The basis for this invention was Helmholtz's knowledge of the anatomy of the eye, his mastery of physiological optics, his experimental ability, and, as stated in his own language, his wish to devise an improved method of demonstrating a somewhat obscure phenomenon to his students. Modesty and generous impulse made Helmholtz say that Brücke could equally well have invented the ophthalmoscope had he only asked himself how an optical image is formed by the light returning from the eye. I doubt if it could be successfully contended that Brücke's actual information about the eye was less than Helmholtz's. Helmholtz himself says that Brücke "was just the man" to make the invention, and by this he must refer to equipment in knowledge. In what, then, did Helmholtz excel Brücke? I would answer, in creative fancy, in imagination. The controlled play of fancy, using the facts of the case for its playground, is what made Helmholtz see the possibilities and see them so clearly as also to make it appear worth while to put energy into the effort to see the retina.

It would be easy to multiply examples of the almost playful way in which Helmholtz utilized the children of his rich fancy to extend the bounds of scientific knowledge. The ease with which he made his intellectual progress is one of the most striking features of his wonderfully creative career. Often on solitary walks in the country he experienced ideas that seemed to clarify refractory problems. From the great wealth of his impressions and associated ideas, arising through the operation of active fancy or imagination, there seems to have been a process of controlled selection and rejection by which the finished products, the great ideas, were built up—a conscious selection not without analogies to natural selection in the upbuilding of the physical machinery. In the entire list of the masters of medicine I think there has been only one mind that can be regarded as belonging on the same lofty level as that of Helmholtz, in respect to controlled yet expansive powers of imagination combined with the energy of performance and the technical training necessary to apply those powers. The intellect of Pasteur, and his alone, has revealed associative power and logical sequences of thought culminating in discoveries fairly comparable to those of Helmholtz in respect to the depth of their

psychical basis. And it is probably no accident that the two greatest minds in medicine have entered it on the streams of pure science, Helmholtz as the biological physicist, Pasteur as the biological chemist.

As a human being Helmholtz takes rank with the noblest of men. Considerateness for others and a willingness to help worthy persons were prominent characteristics. He had a calm self-control which still left him natural and simple in human relations, although this fine dignity served as a check to the approaches of shallow and trivial people. Helmholtz was an idealist of the purest type, and never permitted personal interest to interfere with his best aims as a student of science. His was a poetic nature, apt in versification and in music, yet with an intellect so searching that he was not entirely satisfied by esthetic feeling and phantasy, but sought also to understand them. Modesty was one of his greatest charms, and this quality was attractively seen in the sentiment which he expressed on being awarded the von Graefe medal in recognition of his services to medicine through the invention of the ophthalmoscope:

> Let us suppose that up to the time of Phidias nobody has had a chisel sufficiently hard to work on marble. Up to that time they would only mold clay or carve wood. But a clever smith discovers how a chisel can be tempered. Phidias rejoices over the improved tools, fashions with them his god-like statues and manipulates the marble as no one has ever before done. He is honored and rewarded. But great geniuses are modest just in that in which they most excel others. That very thing is so easy for them that they can hardly understand why others cannot do it. But there is always associated with high endowments a correspondingly great sensitiveness for the defects of one's own work. Thus, says Phidias to the smith, "Without your aid I could have done nothing of that; the honor and glory belong to you." But the smith can only answer him, "But I could not have done it even with my chisels, whereas you, without my chisels, could at least have molded your wonderful works in clay; therefore I must decline the honor and glory, if I will remain an honorable man." But now Phidias is taken away, and there remain his friends and pupils—Praxiteles, Paionios, and others. They all use the chisel of the smith. The world is filled with their work and their fame. They determine to honor the memory of the deceased with a garland which he shall receive who has done the most for the art, and in the art, of statuary. The beloved master has often praised the smith as the author of their great sucess, and they finally decide to award the garland to him. "Well," answers the smith, "I consent; you are many, and among you are clever people. I am but a single man. You assert that I singly have been of service to many of you, and that many places teem with sculptors who have decked the temples with divine statutes, which, without the tools that I have given you, would have been very imperfectly fashioned. I must believe you, as I have never chiseled marble, and I accept thankfully what you award to me, but I myself would have given my vote to Praxiteles or Paionios."

If we turn now to Helmholtz's great contemporary, Louis Pasteur, we discern many points of resemblance in the mental endowments and in the careers of these two superlatively eminent masters of medical science. Pasteur, like Helmholtz, was greatly helped in early life by the patient guidance of earnest and capable parents, and, like him, showed a strong interest in poetry and art, the portraits made by Pasteur during his teens showing unmistakable artistic talent. Pasteur's considerable aptitude for mathematics developed later than that of Helmholtz and was of a less original sort, yet served him well, especially in his earlier researches. Both men were endowed with phantasy and associative power of the highest order, but, while Helmholtz seldom departed from the path of strict logical development of his ideas, Pasteur, with his more impetuous nature, sometimes permitted himself to make speculative excursions of a more random kind. Both found their greatest enjoyment in dealing with the development of general ideas, but Pasteur, on realizing his power to help mankind through his discoveries, deliberately turned his rare gifts to the solution of practical problems in medicine, whereas Helmholtz was satisfied to continue to build the foundations for the physiology of the sense organs and for a better psychology and metaphysics. It is very noteworthy that both Helmholtz and Pasteur were deeply influenced in their outlook by certain conceptions of wide applicability. On the other hand, Pasteur's scientific and philosophical thought was influenced definitely and profoundly by the conception of molecular asymmetry in nature. His interest in this subject was awakened by the study of the salts of tartaric acid, which culminated in 1848 with the famous discovery that the optically indifferent or racemic tartaric acid crystallizes into equal quantities of the ordinary dextrorotary tartaric acid and of the newly recognized levorotary tartaric acid. It was Pasteur's interest in the problem of molecular asymmetry, and especially certain theoretical notions on which we need not linger here, that induced him to experiment on the action of micro-organisms on racemic ammonium tartrate, with the striking result that the living beings converted the optically indifferent solution of salts into a levorotary solution. This showed that the dextrorotary constituent of the indifferent racemic tartrate had been assimilated by the micro-organisms, while the levorotary constituent was unaffected. I emphasize these studies of Pasteur's because they were what excited his interest in the then obscure problem of fermentation, which in turn led him to take up those studies of the causation of disease by micro-organisms and those researches on immunity which have revolutionized the entire science and art of medicine. To do anything like justice to these extraordinarily fertile and original researches of Pasteur is wholly out of question here. I can merely direct your attention to the researches which in the fullest way exemplify Pasteur's gift of imagination and power of experimental control. There are six studies or groups of studies whose histories exhibit Pasteur's genius at its best—the research on the tartrates, the investigations on fermentation, the inquiry into the causes of the silkworm disease, and the methods of its eradication, the research on chicken cholera and immunity to it, the research on anthrax, with the extraordinarily dramatic scenes attending the public test of the immunization methods, and finally the masterly researches on hydrophobia.

In all these different groups of researches were displayed the most active powers of associative thought and phantasy, the most admirable capacity for self-criticism. As Pasteur made his publications in a terse, compact style, we cannot always reconstruct his logical processes by reading them. His method of thought and procedure were, however, well known to his colleagues, with whom he loved to discuss his ideas and plans of experiments. They found him spirited, fertile and imaginative in his conceptions, frankly communicative, generous in giving help and wholly absorbed in his work. Like many intensely serious men, Pasteur lacked somewhat the sense of humor. His feelings of partisanship were so strong that he could never overcome his resentment toward Germany, and he permitted this to color even his relations with German scientific workers. Yet one should dwell but lightly on these slight imperfections

in a nature of such great gifts and such lofty and unselfish purpose.

At the time when Pasteur was beginning his research on anthrax, a young student of medicine at the University of Strassburg, Paul Ehrlich, was laying the foundations for that uniquely fertile and versatile career of medical research which has made him the most original and picturesque of living investigators of medical science. Although at this time Ehrlich was especially under the direction of the anatomist, Waldeyer, he rapidly developed a capacity for chemistry which was a surprise both to himself and to the chemist, Adolf von Beyer, whose lectures had been systematically cut by the gifted but unconventional student. For unconventional he then was and ever has been, neglecting what he did not like and throwing himself with fervor and intense energy into the solution of the themes that attracted him. From the outset it was clear that Ehrlich would make a career as an experimental investigator. Much of the time he was supposed to spend in taking the usual medical courses he devoted to experiment. When Robert Koch was shown through the laboratory at Breslau by one of the professors his attention was called to a young student working at a desk covered with bottles of dyestuffs. "There is our little Ehrlich," said the professor; "he is a first-rate stainer of tissues, but he will never pass his examinations." The prediction about the examinations came perilously near fulfilment; Ehrlich made bad flunks and it is hinted that he would never have received his degree had not he made a discovery—namely, the existence of the peculiar type of leucocyte which is known to us as the "plasma-cell." The faculty reasoned that it would be improper to keep so promising and original a worker indefinitely in an undergraduate position, and it is suspected that they mitigated the rigor of the examinations in order to relieve their own embarrassment.

A noteworthy example of Ehrlich's free-lance method is seen in his peculiar way of working at chemical problems. Though a highly accomplished organic chemist, both as to theory and a singularly rich acquaintance with the properties of substances, Ehrlich rarely uses any but the simplest methods and quite refuses to work quantitatively. His personal experiments are almost exclusively test-tube experiments, most ingeniously contrived to yield a rich fund of knowledge. He says:

> For the pure chemist, who proceeds analytically or synthetically, my way is only an unending *pons asinorum*. The chemist starts from two substances, *a* and *b*, both of which he knows, and by synthesis derives substance *c*. Through this procedure a sure insight into the nature of the process becomes possible. This is exactly as if one drew a circle with the calipers. On the other hand, one may define a circle by means of a large number of tangents, and the chemistry which I practice is a kind of tangent chemistry. Through my schooling in this tangent chemistry I have had a great advantage in dealing with immunity problems. If one cannot define chemically the components entering into action, as is frequently the case in immunity problems (for example toxin and antitoxin) one cannot draw the circle in the usual chemical way and the nature of the reaction process must remain a closed book. But for one who has worked for decades, as I have done, at tangent chemistry, the task is no longer so difficult; and I think that in this way, through the recognition of toxoids and their quantitative formation from toxins, I have succeeded in correctly bringing out the two functional groups, the toxophore and the haptophore, which indeed furnish us with the key to the entire doctrine of immunity.

Ehrlich's dominant interests during the student days were histology and chemistry, but his attitude toward these subjects was even then highly individual, original and laden with the dynamic spirit—the spirit that seeks to gain a conception of what goes on in the living cells. Throughout his career Ehrlich has sought to use his knowledge of histology and of chemistry to gain light on the processes of life. The clarity of his visual perceptions and the tenacity of his visual memories have enabled him to cultivate a sort of chemistry peculiarly suited to this aim. Ehrlich early recognized that he had a peculiar gift of being able to recall and represent mentally the constitution of a large variety of substances and with little effort to picture vividly their interactions. He definitely states that he considers this chemicoplastic memory his greatest scientific endowment, and it is clear that the long line of his investigations is founded on this faculty and on his taste for rational therapeutics. Like Helmholtz and Pasteur, Ehrlich has been guided in his experiments by certain well-defined general conceptions. The most important of these in Ehrlich's case is the idea that the living cells have many different kinds of definite chemical affinities, by virtue of which they are able to enter into combination with some compounds and not with others. This idea is at the foundation of Ehrlich's well-known researches on the basophilic, acidophilic and neutrophilic leucocytes, on the distribution of dyestuffs in the so-called "intravital" staining, on the cell affinities of the different alkaloids, on the side-chain theory of immunity and the measurement of the strength of antitoxin, and on the organic chemical compounds of arsenic in relation to the trypanosomes of the sleeping-sickness.

The recital of Ehrlich's achievements in medicine would demand a voluminous space, for his activities have been intense and varied. The pharmacological studies, the work on immunity in its different phases (including the action of hemolysins), the experimental studies on carcinoma—each of these deserve the most careful study, not merely because of actual results gleaned, but on account of the luminous ingenuity of the methods employed.

It is in the field of immunity that Ehrlich has won his brightest laurels. The discovery that vegetable poisons like abrin and ricin excite antitoxicity, the development of a method of measuring the activity of the diphtheria antitoxin—a standard method the world over—the extremely ingenious studies of hemolysins, the recognition of the laws of transmission of immunity from mother to child, and the discovery of immunity in trypanosomes exposed to the action of arsenical poisons, are all contributions of far-reaching import. And cementing all Ehrlich's special investigations of immunity, relating them also with his work on the distribution of dyestuffs, alkaloids and nutritive materials generally, stands the famous "side-chain" theory. This bold, elaborate and refined hypothesis of the nature of immunity, this offspring of rich phantasy and fertile experimentation, was long the source of discord and strife among bacteriologists and pharmacological theorists. At the height of the controversy Ehrlich once remarked: "They are shooting into my antitoxin tower and I will reply vigorously." To-day a welcome peace—perhaps merely a truce—has succeeded the sometimes heated contest, and only an occasional stray shot is heard. However widely the rival camps may disagree on certain points, there seems now to be a common ground. The centrally emergent conception in immunity appears to be the existence of a specific binding or anchoring avidity between the immunity-excitant or antigen and certain substances belonging to the living cell—the so-called receptors. This conception and the

extensions that follow from it—including, for example, the now familiar view that the antitoxin freed in the blood represents excessively multiplied receptors disengaged from the stimulated cells—are peculiarly original with Ehrlich. His mind reached this central idea, because it is a mind beset by chemical phantasy, a mind seeking to explain all biological phenomena in medicine by means of chemical principles. In the special case of the side-chain theory, Ehrlich's intimate knowledge of the chemical and biological properties of the dyestuffs played a very large part, and it should be noted that the theory is in this sense a hybrid, that it originates not from a purely chemical conception, but from a chemical and a biological idea. Slowly that theory grew to its present full proportions and its somewhat bewildering intricacies of superstructure. In this elaborate form there is doubtless much in the hypothesis that can be criticized if we turn to it in the hope of learning the absolute truth in respect to immunity. It is perhaps just to say that the value of the theory lies largely in the fact that it expresses relationships. Time and experiment will doubtless mold it anew. But whatever changes in form it may suffer, the data collected by Ehrlich and correlated by him will long remain a monument to his experimental genius and creative imagination. And the fair-minded critic will remember the great practical services which this theory has rendered and is still rendering to medicine, in enabling investigators to pursue their experiments in new territories of research in immunity by giving them points of attack and lines of advance. It is stated by Wassermann, the discoverer of the serum reaction of syphilis, that he could never have worked out this biological reaction had he not possessed the side-chain hypothesis as a guide. It seems clear, too, that the intelligent use of this hypothesis is destined to aid us greatly in learning something of the seat and mode of action of many drugs of which we now know but little. And, again, there are unmistakable signs that the side-chain conception will give many a clue to the understanding of the nutrition of cells.

Ehrlich's mind is singularly labile, playful and restless. It passes quickly and casually from one subject to another, yet without the least confusion. It is always on the alert, ready to dally with a new fact or a new idea, in the hope that it will illumine one of the many experimental interests with which consciousness ever teems. Ehrlich reads medical literature rapaciously but selectively, ignoring all but the themes in which he has a special interest, as one reads who reads for his pleasure and not for duty's sake. This unusual method is extremely effective and gives a highly serviceable command of facts likely to be helpful in extracting from Nature new facts by experiment. Even during holiday seasons, this spirituelle, penetrating mind knows no real rest, for the time is beguiled by the reading of detective stories, even second-rate ones, in the hope of finding some new and complicated situation, for which an ingenious solution can be invented.

It is a cheering sign of the times that the cultivated classes are beginning to recognize the essential rôle of imagination in the progress of the biological and medical sciences. President Eliot remarks that the nineteenth century has taught us that, on the whole, the scientific imagination is quite as productive for human service as the literary or poetic imagination. "The imagination of Darwin or Pasteur, for example, is as high and productive a form of imagination as that of Dante, or Goethe, or even Shakespeare, if we regard the human uses which result from the exercise of imaginative powers and mean by human uses not merely meat and drink, clothes and shelter, but also the satisfaction of mental and spiritual needs." The history of medical discovery is a long chain of imaginative experiences whose links have been welded and fixed by passing through the fiery ordeal of appeal to experimental tests. And could we but set forth, in fitting language, the true story of these mental experiences, with all their vicissitudes of hope and despair, success and failure, we should certainly dispel for all time the wide-spread notion that medical research is a dry and painful task, to which only an unimaginative mind can turn with satisfaction.

There is a phase of imaginative thought and feeling which expresses itself in a strong desire to pursue ideal ends, even at the cost of the ordinary prizes of life, wealth, material power and physical comfort. This idealism has been a very pronounced attribute of the great masters of medicine. In a noteworthy degree they have all possessed it and some, like Helmholtz and Pasteur, have led lives of unpretentious, simple self-sacrifice in admirable harmony with the illustrious and superlative service they have rendered mankind. This idealism, while clearly a moral trait in the conventional sense, seems to be the offspring of the creative intellectual attitude and especially of an absorption in work, which leaves the mind neither time nor inclination to seek the petty advantages for which most men at some time in their lives find themselves struggling. For these reasons, indifference to vulgar aims and aloofness from commonplace interests are apt to be found where there is preoccupation in productive work of a high order, whether this be concerned with science or not. But in the medical sciences the rewards are so great, in the sense of personal satisfaction from superior achievement, that there is an especial and peculiarly potent incentive to repress those exaggerations of the self-preservative instinct which show so insistently in the selfish conduct of commonplace persons.

There is a special quality pertaining to the greatest masters of medicine which arrests our attention when we survey their life work. This is the wonderful variety and number of their discoveries. We are struck with this quality of productivity in the works of Hunter, Malpighi, Johannes Müller, Claude Bernard, Helmholtz, Pasteur, Koch and Ehrlich. In some instances the range of topics is relatively narrow, as in the case of Koch, or extraordinarily wide, as in the case of Helmholtz, but in nearly all instances the great masters have been repeatedly productive, and this varied productivity on a high plane is an unfailing mark of genius. On the other hand, it is necessary to recognize that very important discoveries in medicine have been made by men who once in their lives, and once only, have attained a high level of achievement. There are two examples of this singularity in discovery which I would bring particularly to your notice—one the discovery and development of the antiseptic method by Lister and the discovery of general anesthesia by Morton.

When Lister visited Pasteur in 1865 he was much impressed by the attitude of the great master in regard to the wide part played by micro-organisms in fermentation and disease. As a surgeon he had a deep interest in the diseases of wounds, and the idea established itself in his mind that such diseases might be due to a kind of fermentation which might be checked or prevented by the use of antiseptics. This idea, worked out by Lister with the utmost patience and superior intelligence, gave

the wonderfully far-reaching results with which we are all familiar. The important results of Lister's methods are not limited to the surgical diseases of human beings. By making it possible to experiment on animals in wholly new ways, these methods have placed in the hands of the physiologist a powerful instrument for the extension of medical and biological knowledge along most significant lines of progress. We have, therefore, to concede that Lister's discovery is one of such rich fertility as to make it rank among the great discoveries of medicine. Yet it cannot be claimed that Lister was a great scientist. In training, in originality, in versatility and in imagination he is far from being the peer of the great masters of whom we have spoken. And we see here, again, that the practical import of a discovery is no arbitrary measure of the scientific attainments of the discoverer.

Hardly less valuable an asset of practical medicine is the discovery of general anesthesia, but it appears that the qualities of mind revealed by Morton belong to a level less high than those of Lister. Morton was an alert, enterprising young dentist in Boston, who, while educating himself in medicine, successfully practiced his calling and invented an improved system of dental plates. The use of this system required the free removal of carious and otherwise diseased teeth, and this caused great pain. To relieve this pain, Morton pertinaciously sought an efficient anesthetic. After many unsatisfactory trials with different substances, he experimented with sulphuric ether, given him by Jackson, the professor of chemistry in the Harvard Medical School. In 1846 he succeeded in demonstrating the efficacy of sulphuric ether as a general anesthetic and thus gave to mankind a precious, almost unequalled boon.

This great discovery cannot be reckoned as one of high fertility, since, aside from anesthesia, it has not opened new lines of thought or practical service. Neither can it be said to have sprung from a scientific mind of exalted qualities and attainments. It has the earmarks of a child of empiricism. Morton's scientific knowledge was slight, and his mind had a strong commercial bent. The singularity of his discovery, the only one of his life, points neither to fertility of resource nor to lofty imagination, but to the fortunate combination of conditions under which he insistently exercised his ingenuity.

Having told you something of the qualities distinguishing the modern masters of medicine, I now ask your permission to speak of certain aspects of these qualities as they seem related to the career of the thoughtful student of medicine. And first of all I would correct in your minds any impression I may have made of a discouraging nature. Having drawn our examples of medical advance so largely from the work of supremely gifted men, workers in laboratories, many of whom have not been practitioners of medicine, or have only casually practiced, it may possibly appear that you are confronted with the paradox that an essential condition of the loftiest success in medical science is to abstain from the practice of medicine. There is, indeed, a measure of truth in this, for, as I have already tried to show you, entire absorption in the practical problems of medicine unfits men to pursue with the highest success the career of discovery. In this there is naught of real discouragement, but only a sign that the problems of disease, as we meet them by the bedside, are far too complex to permit solution there. There was a time when all medical discovery was based directly on observation at the bedside. Then, with the growth of anatomy, the invention of the microscope and the coming of the twin hand-maids of medicine, physics and chemistry, the laboratories spring into existence. Much there was that could be discovered only by laboratory methods, and so it happened that some men were justified in working at medicine, and able to become masters of medicine, though they scarcely left their laboratories. But I would have you note well that we have now entered on a time when the clinics and the laboratories must work more and more closely together, aiding each other at every step to bridge the wide chasms of our ignorance. And just here lies one of the greatest opportunities for the alert student of medicine, undergraduate and postgraduate to do something worth while. For the problems are so many, so varied and so widely graded as to difficulties that for almost every earnest student there is at hand a theme suited to his powers and training.

I have intimated my belief that the powerful and controlled imagination is generally associated with a strong vein of idealism. The explanation is not remote; the imagination separates the wheat from the chaff in the realm of ideals, picturing vividly what will yield enduring satisfaction. In persons of average capacity and imagination, idealism is more halting because the perceptions of what is permanently worth while are less definite and carry less firm conviction. Hence in such persons idealism of conduct is less spontaneous and calls for conscious effort to sustain it. It is, indeed, a quality which may be deliberately cultivated if the germ exists in the character.

What I would like particularly to impress on your minds is that without idealism of purpose, without the willingness to make sacrifices of material comfort and much that the world overprizes, the career of the student and practitioner of medicine is almost certain to be pitifully limited and mediocre. He will do well who has the character to run his course in a strong spirit of independence, satisfied during the long years of professional preparation with the slender means that permit the prolongation of some phase of the student life long after graduation from the medical school. There is no surer road to hopeless mediocrity than that which leads the young physician to assume an active practice before he is ripe for it. On the other hand, the student physician who waits patiently, year by year, to strengthen his intellectual grip on the processes of disease, if possible under the guidance of some master of medicine, is laying the unshakable foundations of a telling and distinguished career. He need have no anxiety as to the future either on the score of professional recognition or the ability to earn a sufficient income. For the world needs and must ever seek the serious, well-trained, idealistic physician whose first thought is to render a high grade of service. The superior type of student will not dread the long years of preparation in laboratory and clinic. He will eagerly seek them and will count it the greatest privilege of his life to be able to utilize and develop his powers. The fascinating interest of his problem and the elevation of his ideals will keep him buoyant under circumstances of discouragement. If he be blest with a fair share of imagination and idealism he will never falter in the struggle to make a worthy career, for he will know that he is treading in the footsteps of the great masters of medical science and that in doing so he is helping to assuage human suffering, perhaps also to illuminate some of the dark problems in the baffling mystery of life. And in this consciousness will he find ample compensation for the self-abnegation which such a career must necessarily exact from its votaries.

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Original Articles

WHAT PHYSICIANS CAN DO TO IMPROVE THE PHARMACOPEIA *

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I may underrate the difficulty of my task, but it seems to me very simple. Physicians can improve the Pharmacopeia by taking a more direct and critical interest in it. I have had occasion lately in a paper read before the Philadelphia County Medical Society to present some facts concerning the change of control in the Pharmacopeia and to suggest radical changes in the method of revision. That paper has been deemed of sufficient importance by several pharmaceutic journals to be published in full.

It is not necessary to present in any detail the history of the nine issues of the Pharmacopeia. The important data are given in the book itself. The first issue (1820) was under exclusive medical control. No college of pharmacy then existed in this country, and advice was but indirectly received from pharmacists. Notwithstanding the fact that colleges of pharmacy were established before the first revision, no delegates from them or from pharmaceutic societies are recorded until 1850, and even then the revision of that period was issued as being under the "authority of the National Medical Convention," as the revisions of 1830 and 1840 had been. To the convention of 1850 the Philadelphia College of Pharmacy sent three delegates and the New York College two.

In the last revision the substantial control by pharmacists is seen on examining the composition of the Committee on Revision and the Board of Trustees. The Committee on Revision consists of twenty-six members, of which number twelve have the degree of M.D.; but several of these are surely much more closely connected with pharmacy than with clinical medicine. The Board of Trustees consists of seven, of which number two have the degree of M.D., and one of these is a professor in a college of pharmacy. I make no charges, nor do I entertain any thought that pharmacists have acted unfairly in these distributions of control. Physicians relaxed their interest and it was necessary for some one else to take up the work.

My hope is that physicians will see the advisability of asserting their opinions in regard to the ninth decennial revision. The medical profession is entitled to at least equal representation on the Committee on Revision and Board of Trustees by reason of its numerical strength in the nation at large, by reason of its historic relations to the revisions and by reason of the medical significance of the book. It is to be hoped that some system will be devised by which equitable representation in the convention will be secured. For the convention in 1900 twenty persons were elected in Philadelphia, of whom eleven were pharmacists and nine doctors. All the pharmacists were present and six of the doctors. I am at a loss to understand why the Alumni Association of the College of Pharmacy should have been allowed representation on the floor of the convention. The college itself was fully represented and also the State Pharmaceutic Society. An inspection of the roll of the last convention will show some phases of representation that can be best compared to what is known in England as the "rotten borough" system. A convention should have a definite system of representation.

It is, in my opinion, now time to make the United States Pharmacopeia a national work in the full sense of that expression. We live in a very different world from that in which the book had its origin. The little band of doctors that met in Washington on New Year's day, 1820, in the hot youth of the Republic, when George III was king and James Monroe President, would have been shocked to hear that a time would come when Congress would make a law establishing the provisions of the Pharmacopeia as a legal standard. They would have regarded such a drift toward centralization as a blow to republican institutions and in destruction of American liberty. We moderns feel no such alarm, recognizing that all the steps toward a better union are over the ruins of state individualism. Now that penal enactments give the requirements of the Pharmacopeia the force of law, it is but wise and just that the framing of these requirements should be carried out under official sanction. The United States Government should summon the convention and provide for the expenses of the delegates. There is no need for the numerous attendance that has become customary of late years. There is no reason that every college and society of pharmacy and medicine should be authorized to send accredited delegates. The work of the last revision was done by a few men, not more than twenty-six authorized persons in all; and from what I have learned in a very large experience of committees, boards and commissions, I feel inclined to say that if the minutes of the Revision Committee were published, it would be found that a few competent and active spirits did most of the work and determined the main lines of policy. If the American Medical Association and the American Pharmaceutical Association were each authorized to send, say, ten delegates, and the medical departments of the Army, Navy and Marine-Hospital Service each, say, three delegates, a convention could be held fully as representative as any that has ever assembled for such a purpose. The publication should be carried out by the United States Government. A Committee on Revision should be designated which would have power to make necessary changes in the interval between revisions. Revisions should be once in five years. The decennial revision satisfied the conditions of 1820, but progress in pharmacy and medicine is too rapid now for such a long interval. The preparation of the revision should not occupy over one year. The circumstances that attended the publication of the last revision, namely, that it took five years to finish, are wholly inconsistent with the principle on which such a work is published.

During the preparation of the revision, the work should be brought before the public for discussion through publication of the more important suggested changes in the leading medical and pharmaceutic journals. In this manner important criticism will be available. Some errors and inconsistencies would be avoided and no injury would be done to any one. I think that the size of the book could be materially reduced, without interfering with its usefulness in the field for which it is intended. Many of the analytic processes could be included in special bulletins as is now done in food analysis work, and to these the special workers could refer.

A work that determines the conditions on which criminal proceedings are brought should originate and be controlled by official authority, not by private management. The framers of the current revision recognized that the

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

book had become a danger in this respect and placed it in a formal statement that it is a standard for drugs and not for foods. Under the sanction and control of the general government, the book will become in reality the "United States Pharmacopeia."

ABSTRACT OF DISCUSSION

PROF. JOSEPH P. REMINGTON, Philadelphia: I think every member present is conversant with the views held by the author. There is practically no change in the paper which was presented before the county medical society. It is full of inconsistencies. I do not desire to attack the paper in detail. I will only say that I do not think that a committee formed solely from the American Pharmaceutical Association and the American Medical Association would be nearly so representative of the whole country as would be the convention in the present form. Sooner or later I apprehend that the United States government will have more and more influence in the formation of the Pharmacopeia. Whether that will take place soon or late I do not know. I do not think any of us know. At any rate the U. S. Pharmacopeial Convention is on pretty solid ground and it directs how the next Pharmacopeia shall be revised. Dr. Leffmann is not correct in his dates. He spoke of the Pharmacopeia of 1820. The first College of Pharmacy in the United States was founded in 1820 and he spoke of the pharmacists having no connection with the revision until 1850. In the Pharmacopeia of 1840 is an acknowledgement that the Pharmacopeia of 1840 was the work of the Philadelphia College of Pharmacy. The physicians had abandoned that Pharmacopeia entirely. In the preface of that Pharmacopeia is a statement to that effect. I am very tired of this contention as to who is going to be the greatest in the Kingdom of Heaven. It seems to me puerile in the extreme. I have no desire to sit at the head of the bench. What we want is not a pulling asunder, but a getting together, and we want the best assembly possible for the Ninth Revision Convention, and I am willing to help in organizing the American Chemical Society, which is coming in, the government interests which are coming in and all others entitled to representation, but the greater interest of the American Medical Association is what we want, and I am sure the question of supremacy, whether it will go to the doctor, the chemist or the druggist, can very well be left to the future.

DR. HENRY BEATES, Philadelphia: The official adoption of remedies comprises three conditions: One, proving through chemistry how they affect human kind; another, the effect of medicine on the human economy, empirically proved—whether the fact can be demonstrated and explained through chemistry or not; thirdly, by a physiologic or biologic demonstration of the manner of their action. In order to adopt any remedial agent, one or all of these conditions should be the determining reason for either official recognition or rejection, and it appears manifest, if this be true, that on the Committee on Revision, therefore, chemists, physiologists, biologists, and clinicians should be represented; and, because medicines are manufactured, the interests of the manufacturers should be represented. Such a title as "The Capture of the Pharmacopeia by the Medical Profession" engenders antagonism between the interests above mentioned, and lays the foundation for disintegration and serious trouble. To suggest such a revolution in the formation of the committee on Revision, as the paper suggests, is exceedingly dangerous. I believe the department of pharmacology in affiliation with the medical profession, should be strengthened by each individual, so trained himself, as to be able to act with freedom from prejudice and sentiment, and capable of approaching the subject with a broad and open mind, and acting intelligently and honestly. A man should have the courage of conviction, and be able to contend for that which he believes to be right. He should also be sufficiently brave to acknowledge error, should his attitude prove to be mistaken. I hope that the action governing the next meeting of the Committee on Revision of the United States Pharmacopeia will be characterized on the part of every one by the spirit manifested in the words of the martyred president: "With malice toward none, with charity for all, with firmness in the right, as God gives us to see the right, let us continue in the cause we are in." It is only by such action that genuine progress is assured.

DR. M. G. MOTTER, Washington, D. C.: We heard in a paper that some ten or twenty years ago there were nine physicians appointed as delegates to a pharmacopeial convention from Philadelphia. Among them was a delegate appointed to the 1890 Pharmacopeial convention, appointed again a delegate to the Pharmacopeial Revision Convention in 1900. He was not there on either occasion, but after at least twenty years he has waked up to the fact that he ought to do something for the Pharmacopeia.

DR. REID HUNT, Washington, D. C.: I think one thing is coming out in these discussions, viz., how far apart the physicians are among themselves as to what they want. We have some physicians who want to have ten thousand things in the Pharmacopeia and others who want about one hundred. We have some physicians who want to lean very largely on the chemical and pharmaceutical knowledge of the pharmacists and others who rather resent any suggestions from that quarter, and I am afraid the physicians have not come to see and know what they want any more now than in the last few decades.

PROF. JOSEPH P. REMINGTON, Philadelphia: In connection with the results of the work of this section we have not got hold of the men we want. We have discussed the United States Pharmacopeia, the National Formulary and all these interests, and all the papers of this symposium have been most interesting, but what have we done? Discussed it among ourselves, among the very men who do not need the information, but the great body of the American Medical Association, the rank and file, have not been here. I wish there were some way, Mr. Chairman, by which we could have had a general meeting. Next year the Decennial Convention for the Revision of the Pharmacopeia meets. We have heard about the American Medical Association taking such an interest in this work, but have there been any considerable number of the rank and file of the physicians here? I am not going to be in the position of the clergyman who gave out on a certain day that there was to be the largest outpouring of his congregation there had ever been. Well, on that day there happened to be a terrible snowstorm, and instead of having the church filled he had about ten faithful members. He was so disappointed that he got up in the pulpit and began scolding and berating the congregation, when one of the members whispered to him, "They are not the people you want to hammer, you want to go for the people who didn't come." So the clergyman ceased berating and said, "But just wait until I see the rest of the congregation who aren't here and see what I tell them." Time is pressing. I confess I have a feeling of disappointment. If there could only be a general discussion by the whole association in view of the fact that next year is to be the year for the convention, then we could have had some opinions valuable in educating and getting hold of the rank and file. We have to depend on the meetings between the present and the convention to see that the question of the use of the Pharmacopeia and the National Formulary is brought before the medical profession.

DR. REID HUNT, Washington, D. C.: In reply to the last question, I think there are prospects of different sections, through their committees, doing some work in the next few months. The action of the Committee of the Section on Ophthalmology enables each member of that section to express an opinion on what drugs he considers to be of importance; the same action will be taken by a number of other sections, and this will certainly give valuable material as to what representative physicians consider to be of value.

Mercuric Chlorid as an Insecticide.—Experiments conducted by the U. S. Public Health and Marine-Hospital Service show that bichlorid of mercury sublimed in a sealed room is effective in killing mosquitoes and flies, and to a less extent bedbugs and other insects. Further experiments are necessary, however, to prove its real value. The advantages of this agent are: facility of obtaining it, small quantity necessary (60 grams being sufficient for a room containing a capacity of 2,000 cubic feet), and simplicity of its employment.

SOME OF THE PREPARATIONS OF THE UNITED STATES PHARMACOPEIA FROM THE PRACTITIONER'S STANDPOINT *

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Preliminary to the main subject of this paper I wish to make a few general remarks regarding the attitude of the general practitioner to the Pharmacopeia.

It is an undoubted fact that the ordinary physician has never seen the inside of a copy of the Pharmacopeia. It is likewise certain that pharmacopeial preparations are used in prescriptions much less frequently than they would be if the practicing physician had a good working knowledge of the preparations recommended by the book. Instead of a knowledge of those drugs and their efficacy or inefficacy, he has an acquaintance with the ethical or purely proprietary preparations of one or another manufacturing firm. He has probably not been taught while he was getting his medical training that drugs can be found in the Pharmacopeia, and mixtures of these can be found in its companion, the National Formulary, which will meet any emergency, and with which any disease can be treated. If he has had such training it has been allowed to atrophy because of the persistence of some manufacturing firm's detail man and because of the ease with which this firm's special constipation pill or cough mixture may be ordered.

Such facts are, at least, discouraging when one realizes that medication, to be efficient, must be simple and directed to the special case in hand. That we must treat the conditions found and not the name of the disease. Another fact has been impressed on me during this study, namely, that even we who boast of using very few drugs, as a matter of fact at one time or another run almost the entire gamut of drugs made lawful by the Pharmacopeia. I have particularly studied these points:

1. Some of the drugs recommended by the Pharmacopeia are obsolete.
2. Some of the mixtures recommended should be relegated to the National Formulary.
3. Some of the preparations should be omitted from both the Pharmacopeia and from the National Formulary.

THE OBSOLETE OR USELESS DRUGS

The Pharmacopeia should be our guide. As I have stated, it unquestionably contains practically everything that is known to be surely useful at the time of publication of the book. It therefore should have expunged from its pages drugs or their preparations which have become obsolete. In a fairly careful review I have selected thirty-one of the crude drugs which could be disposed of without crippling our armamentarium. I am aware that the number seems large. Some seventy titles can be dispensed with if the preparations of the drugs can be counted. I suppose that many men will not agree with my views of the usefulness of these articles, but nevertheless I believe I am right and that they should be expunged.

1. Acetum Opii is certainly little used and not as valuable as the deodorized tincture of opium.
2. Acetum Scillæ is so rarely used that it but cumbers space.
3. Acidum Nitrohydrochloricum Dilutum is notoriously useless when kept for any length of time.
4. Berberis is notably valueless when compared with a preparation of Nux Vomica. It but helps to nullify any attempt at accurate medication.
5. Calamus is no tonic, its valuelessness being proved by its slight use.
6. Calendula is spoken of in the past tense by therapeutists.
7. Calumba has only its bitter taste to recommend it.
8. Chimaphila would never be used to-day in nephritis.
9. Chirata is said to be used in Hindostan. It does not maintain its reputation here.
10. Cinchonidinæ Sulphas has no value as compared with the valuable quinin.
11. Cusso may be valuable as a tenicide but it is notoriously impure and hence should be expunged.
12. Cypripedium has no place in modern therapeutics.
13. Euonymus is certainly not proved to be a hepatic stimulant.
14. Geranium is a beautiful flower, but as a medicine a nonentity.
15. Guarana is certainly much less efficacious than the alkaloid caffein.
16. Infusum Pruni Virginianæ is so seldom used save by the laity that it seems useless to recommend it.
17. Krameria has such a doubtful value as compared with the newer astringents that it is seldom used.
18. Lactucarium is so inert as a soporific that it is now entirely displaced. Wood has tried it in large doses with no effect.
19. Lappa (burdock) has been—indeed, is now—recommended in secondary syphilis and "scrofula." Is not that little less than criminal?
20. Leptandra is another makeshift as a biliary stimulant.
21. Lupulin should certainly be carefully investigated as to comparative value before it is replaced in the Pharmacopeia, though the odor of a hop poultice is soothing.
22. Mastiche is said to be never used except in the compound pill of aloes and mastic. Surely it can be dispensed with.
23. Matico also has possible values, but they are only problematical.
24. Matricaria (chamomile) as a tea is a popular remedy with the masses. It has no proper place in the Pharmacopeia.
25. Mezereum is chiefly valuable (?) as an irritant poison.
26. Pareira is one of the drugs which is impressed on my brain from student days. I doubt if it is ever used.
27. Phytolacca is gathered by the poor in lieu of asparagus. Is it ever used in medicine?
28. Sabal (saw-palmetto) has been largely advertised by certain firms. Its real use is problematic.
29. Sanguinaria is a relic of the past.
30. Stillingia is never used in syphilis with effect.
31. Xantholin is said to be "not well defined" as to its uses.

The uses of these thirty-one substances are certainly unsettled. It seems unnecessary to burden our literature with these doubtful drugs when we have abundance of others of certain value where these can be recommended.

MIXTURES WHICH SHOULD BE RELEGATED TO THE NATIONAL FORMULARY

There are a number of mixtures recommended and made lawful by the Pharmacopeia. This is not the place to discuss the propriety of using ready-made formulas. Personally I believe it is a pernicious habit of which we are all more or less guilty. However this may be, there is the National Formulary which contains numerous recipes more or less useful, and these mixtures should find place there. Their presence in the Pharmacopeia appears to me at least to show a lack of appreciation of the great value of simple prescribing on the part of the learned and earnest gentlemen who make up the Committee on Revision.

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

The Pharmacopeia is the book which should tell us what drugs are useful and how they may be manufactured. It is not its place to dictate formulas for innumerable mixtures, for a mixture is useless except when prescribed for certain conditions which cannot be foretold. The following mixtures, therefore, seem out of place in the Pharmacopeia:

Cataplasma Kaolini, Confectio Sennæ, Elixir Ferri, Quininæ et Strychninæ Phosphatum, Emulsum Olei Morrhuæ Cum, Hypophosphitibus, Extractum Colocynthidis Compositum, Fluid Extractum Rhamni Purshianæ Aromaticum, Glyceritum Ferri, Quininæ et Strychninæ Phosphatum, Infusum Sennæ Compositum, Liquor Antisepticus, Mistura Rhei et Sodæ, Pilulæ Aloes et Ferri, Pilulæ Catharticæ Vegetabiles, Pilulæ Laxative Compositæ, Pilulæ Podophylli, Belladonnæ et Capsici, Pulvis Acetanilidi Compositus, Syrupus Hypophosphitum Compositus.

These mixtures, with perhaps a few more, make up the class of preparations to which I refer.

PREPARATIONS WHICH SHOULD BE ENTIRELY DROPPED

Among these mixtures is the third class which it appears to me would be wise to expunge from both our publications.

I refer especially to Cataplasma Kaolini and Pulvis Acetanilidi Compositus.

These two mixtures and perhaps others are such palpable copies of widely advertised nostrums which are either valueless or dangerous that it would appear unwise to recommend them.

INFORMATION WHICH SHOULD BE CONTAINED IN THE PHARMACOPEIA

I have stated above that two facts, lack of instruction by the teaching authorities in regard to the undoubted sufficiency of the pharmacopeial preparations in the treatment of disease, and the persistence of the detail men, are potent reasons for the failure of physicians to use pharmacopeial preparations. But, it seems to me, there is still another reason. The Pharmacopeia contains the official name of the drug with the method of its preparation, its dose, and nothing besides this.

The method of preparation of a drug and its preparations is of little value to the practicing physician. He must know, however, the dose, the action and the uses of a drug. He is now compelled to turn to the various dispensatories or the innumerable works on therapeutics for this essential information. Dispensatories and many books on therapeutics very properly contain information on many articles which are *not* official.

Now, is it not in the province of the Committee on Revision of the Pharmacopeia to add to the information already given about official drugs a short and concise description of the action and uses of the drugs described? If this is not practicable, cannot this information be given in a second volume, to be used by physicians while the present information could be published in a volume for the use of pharmacists?

It would appear that so long as the Pharmacopeia has its present form just so long it will not be in common use by the practicing physician and he will be forced to depend on other sources for his information. Drug firms are ever ready to supply him with information.

It is impossible, moreover, however desirable, for the every-day doctor to use such names as "hexamethylenamin," "sulphomethanum" and "acetphenetidin" for "urotropin," "sulphonal" and "phenacetin." The Committee must find some synonym for these unpronounceable names. Better adopt the patented name than use the long chemical one

CONCLUSIONS

Certain drugs should be omitted from the next revision of the Pharmacopeia, because they are obsolete.

The mixtures should be relegated to the National Formulary or be dropped.

More information should be given in the Pharmacopeia about drugs.

Impossible names should have synonyms supplied.

421 Lyceum Avenue, Roxborough.

REPORT OF THE COMMITTEE ON THE UNITED STATES PHARMACOPEIA *

To the Board of Trustees of the American Medical Association:—Your Committee on the United States Pharmacopeia begs to report as follows:

The committee, soon after its appointment, sent a circular letter (copy of which is enclosed) to the medical organizations entitled to representation in the United States Pharmacopeial Convention, urging them to consider the appointment of delegates to the convention of 1910 and suggesting that they might find it advisable to appoint special committees on the Pharmacopeia. The letter was also sent to the officers of the Sections of the American Medical Association with the suggestion that they appoint committees to consider the Pharmacopeia from the standpoint of their specialties. This letter met with a cordial reception. Many of the medical organizations have appointed delegates to the convention as well as special committees on the Pharmacopeia. Several sections of the association have also appointed committees; some of these have done considerable work.

The responses to the letter indicate that there is a widespread interest in the Pharmacopeia and a willingness to work. It is evident, however, that some of the committees do not see clearly how they can approach certain of the problems of pharmacopeial revision.

As an illustration of the practical work a section committee can do, the action of the committee of the Section on Ophthalmology may be cited. Recognizing that the problem of revision in which the physician is most immediately interested is that of the scope of the Pharmacopeia, this committee, in order to determine which unofficial drugs are considered by the members of this Section to be most important and most worthy of recommendation for inclusion in the Pharmacopeia, selected from New and Nonofficial Remedies a list of fourteen drugs of special interest to ophthalmologists. This list was sent to the members of the Section (935 in number) with the request that each indicate the six which he considered of most value.

Other sections are preparing to take similar steps, and it is hoped that various medical organizations will do likewise, for your committee knows of no way in which the medical profession can better make its wishes known to the Committee of Revision of the Pharmacopeia. It is especially desirable that this work be done in the near future, for the data so collected may be valuable in connection with the formulation of the general policies to be pursued in the next revision of the Pharmacopeia. The collection and tabulation of such data will involve much labor and some expense, and we believe the American Medical Association should undertake it and not leave it to an already overburdened committee of revision. It is also believed that it would be advantageous for much of the clerical work to be done at the association's headquarters in Chicago, where permanent records could be kept. Since some of the work of the Council on Pharmacy and Chemistry is closely connected with this subject, we recommend that the Secretary of the Council be given authority to cooperate in this matter and that he be given the necessary assistance; the secretary could also serve as a medium of communication between the different committees.

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

Those who realize the possibilities of the Pharmacopeia and the need of greater familiarity with it, will agree that there are few objects for which the association could more profitably make a liberal appropriation.

The chairman of the Committee on Anesthesia of the Section on Surgery was written to with the object of ascertaining if the work of that committee could not be of assistance in suggesting and formulating more perfect standards for the important anesthetics of the Pharmacopeia. It was suggested that it would be highly desirable if such subjects as the following could be considered: the physiologic effects of alcohol-free and alcohol-containing ether; the effect of water and of alcohol on the volatility of ether; the effect of ethyl chlorid in chloroform; the admission of nitrous oxid into the Pharmacopeia; the advisability of recommending the admission of certain anesthetic mixtures, etc. The chairman of the Commission on Anesthesia replied, in part, as follows: ". . . We can hardly see our way, for this year at least, to take up the extensive chemical investigations which you suggest. . . . We had hoped that we might turn to your committee for chemical reports on the quality, composition, and value of the various anesthetics."

While most of the pharmaceutical and chemical problems connected with the Pharmacopeia should be left to the representatives of the pharmaceutical profession, there are a few such problems which should be approached from the standpoint of the physician and should be kept in close correlation with clinical and experimental studies.

The members of this committee believe that the chemical laboratory of the association at Chicago should be available for such investigations and recommend that additional assistance and facilities be given the chemist in charge for the more active prosecution of such studies.

It is evident that New and Nonofficial Remedies is being considered as a Pro-Pharmacopeia from which the best will be transferred to the Pharmacopeia. We believe that this work should be so regarded and that the Council should endeavor to emphasize this side of the work, which is largely independent of proprietary medicines.

It is considered especially important that careful consideration be given to the names under which new drugs are admitted to New and Nonofficial Remedies, for it is very desirable that these be brought to the attention of physicians under unobjectionable names suitable for inclusion not only in the United States Pharmacopeia but in foreign pharmacopeias, as the difficulty of effecting a reform in the nomenclature of drugs which have once come into general use has been well illustrated in the case of our own as well as of foreign pharmacopeias. Hence we urge the Council to use its influence with manufacturers to follow a more scientific system of nomenclature and through its corresponding members (the number of which should be increased) endeavor to secure an international agreement on this important subject.

Respectfully submitted,

S. SOLIS COHEN,
GEORGE DOCK,
R. A. HATCHER,
E. E. HYDE,
W. S. THAYER,
REID HUNT, Chairman.

NOTE. (January, 1910.) Since the above report was submitted, committees of three sections of the Association, viz., those on Practice of Medicine, Ophthalmology, and Stomatology, have submitted very valuable reports embodying their views as to the revision of the U. S. P. and including drugs which they consider should be admitted to or omitted from it. These reports were published in THE JOURNAL, Sept. 4, 1909, pp. 791-796 (cf. also editorial, October 30, p. 1491, and a letter, p. 1500).

Other sections have appointed committees as follows:

Obstetrics and Diseases of Women.—Drs. F. J. Taussig (chairman), H. T. Byford and G. L. Hunner.

Laryngology and Otology.—Drs. D. Bryson Delavan (chairman), D. Braden Kyle and Algerman Coolidge.

Dermatology.—Drs. Wm. Allen Pusey (chairman), M. B. Hartzell and G. T. Jackson.

It is hoped that these committees will submit reports before the meeting of the Pharmacopeial Convention in May and that the other sections will appoint similar committees.

Dr. J. H. Blackburn, director of the course of postgraduate study for county societies, has recommended that each society arrange for a meeting for the discussion of the revision of the Pharmacopeia.

Prof. J. P. Remington, chairman of the present Committee on Revision, recently wrote to the Secretary of the American Medical Association requesting that this Association present to the next Pharmacopeial Convention a "report on the articles and preparations which, in their opinion, should find a place in the ninth revision of the United States Pharmacopeia." Among the reasons given for making this request is the following: "When I state to you that in 1901 more than one year's time was consumed in settling the important questions of admissions and deletions you can see how much valuable time might be saved by having a report from the American Medical Association." Dr. Simmons replied, stating that as the American Medical Association does not meet again until after the meeting of the Pharmacopeial Convention, he presumed that Professor Remington's letter belonged to the Committee on Pharmacopeia and that he had sent it to the latter. The committee will endeavor, with the help of the reports of the section committees and others, to prepare such a report for the Pharmacopeial Convention.

THE U. S. PHARMACOPEIA AND THE NATIONAL FORMULARY

DO THEY CONTAIN A SUFFICIENT ARMAMENTARIUM FOR THE MEDICINAL TREATMENT OF DISEASES? *

M. CLAYTON THRUSH, PH.M., M.D.
PHILADELPHIA

THE NEED OF A MORE INTIMATE KNOWLEDGE OF THE U. S. PHARMACOPEIA AND THE NATIONAL FORMULARY AMONG PHYSICIANS

The propaganda in favor of the U. S. Pharmacopeia and National Formulary which was begun but a few years ago has been reaching a higher state of development year after year, and if its future progress continues in corresponding proportions the time is not far distant when we will be able largely to overthrow by effective legislation, and in other ways, unethical proprietaries, secret nostrums and charlatanism.

This propaganda has been carried on vigorously by certain members of our own and the pharmaceutical professions and, of course, more enthusiastically in certain sections of the country than in others.

In order that this propaganda might be carried out effectively, several divisions of the subject became necessary, and each of these contributed its share of the labor and deserves corresponding commendation.

One of these was the formation of the Council on Pharmacy and Chemistry, which has passed on all the various pharmaceutic products on the market—in fact, acted as a clearing-house for the benefit of the medical profession. There is no question but that this Council has done an inestimable amount of good, and that its reports have been read with interest by all conscientious physicians. The influence of the Council can be appreciated when we note the large amount of money expended by certain firms to bring their products up to a passing standard. The medical profession can thank the Coun-

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

cil for the formulas of a number of well-known proprietaries which hitherto were kept secret. Its work should be continued; and some arrangement should be effected whereby the knowledge gained by the Council in its investigations should be utilized by the next Pharmacopeial Convention, which meets one year hence, and this Council should act as an advisory committee to the Pharmacopeial Revision Committee, and should carry out certain special investigations as they may arise in revising the next Pharmacopeia.

The time that elapses from the meeting of the convention until the new Pharmacopeia appears should be materially lessened, as five years is entirely too long a time for this purpose.

THE RELATIONS BETWEEN THE MEDICAL AND PHARMACEUTIC PROFESSIONS

Another factor is the relations that should and do exist between the medical and pharmaceutic professions. The more cordial the relations between the two professions, the more quickly will the proprietary medicine evil be eradicated. The interests of scientific pharmacy can be promoted by joint meetings between the branches of the American Pharmaceutical Association and local medical societies, a plan efficiently carried out at present in cities like New York, Philadelphia and Chicago. Such joint meetings should be encouraged, as I know of no better way to acquaint the physicians who are now in active practice with the knowledge of these preparations than to discuss them in common with their neighboring pharmacists. Another valuable plan is the one that has been in vogue in Philadelphia for the past two years, according to which the Philadelphia Association of Retail Druggists mails at various intervals to the physicians of the city small booklets of uniform size, suitable for preservation and binding, containing the names of official preparations arranged in systematic classes. The following was inserted in the cover-page of the first issue and shows the object for which they were sent out:

The foregoing formulas are confidently recommended to the medical profession in the belief that these preparations will meet the needs of the physician, without resort to the use of proprietary medicines.

The following subjects show the character of the booklets, as each contains the most valuable preparations as found in the U. S. Pharmacopeia and National Formulary under the respective classes:

Non-toxic antiseptics; animal digestants and their preparations, including those used as vehicles and adjuvants, seasonable preparations for ethical prescribing, popular new preparations of the U. S. Pharmacopeia and National Formulary, intestinal astringents and antiseptics, ethical tonics and alteratives, important vehicles, adjuvants and flavoring agents, the important stomachics, some important U. S. P. and N. F. preparations, diuretics and diaphoretics, the expectorants.

This is the complete list up to the present time. Another important and valuable book in this connection is the "Physician's Manual of the Pharmacopeia and National Formulary," which is an epitome of all the articles contained in the latest editions of these two works, systematically and conveniently classified. This book should be in the hands of every practicing physician in the United States. It is published by the American Medical Association and sells for 50 cents a copy. Other valuable books in this connection which are published by the American Medical Association are: "The Pharmacopeia and the Physician," "The Great American Fraud," "The Propaganda for Reform in Proprietary Medicines" and "New and Nonofficial Remedies."

PHYSICIANS OFTEN IGNORANT OF THE PHARMACOPEIA AND NATIONAL FORMULARY PREPARATIONS

Many physicians are not acquainted with the contents, objects and meaning of the U. S. Pharmacopeia and National Formulary; hence they are too often controlled by motives of convenience in their selection of remedies. Many physicians have the idea that the best drugs and preparations are to be found outside the Pharmacopeia, and their prescriptions prove this fact.

The medical schools hold the key to the situation, as far as the future practitioners are concerned, as all students of medicine should be required to possess an intimate knowledge of the U. S. Pharmacopeia and National Formulary as an essential requirement for graduation.

A more thorough course of pharmacologic instruction should be given in our medical schools. This subject was emphasized in a paper[1] which I read before this Section two years ago, in which the small amount of time allotted to this subject in all the various medical schools was demonstrated by a careful examination of their respective catalogues.

THE PHARMACOPEIA AS A MEDICAL AND LEGAL STANDARD

The usefulness of the Pharmacopeia and National Formulary to the medical profession depends on the degree in which they fairly reflect the best tendency of modern prescribing. Their defects in this respect are referable to faults in the organization of the methods of revision—to secrecy, to infrequent revision, to want of responsibility and to a non-representative method of selecting substances for admission. Their cure depends largely on the active interest of the medical profession.

The U. S. Pharmacopeia has for a number of years been recognized as the representative of the best pharmacopeias in the world; its standards have been worked out most carefully by men of the highest character; its adoption as a standard by the federal law and the many state laws now in existence is but natural sequence. The Food and Drugs Act, which has proved of great value to the whole country, has furnished all that was necessary in order that the Pharmacopeia might be recognized as a legal standard. Before the Pharmacopeia was recognized as a legal standard many manufacturers were indifferent, believing that the standards employed for the purity of the various drugs and chemicals used in their products were variable, and each competitor adopted standards which were convenient to himself. Therefore they often employed drugs of inferior value, and the medical profession had no protection against them, as there was no legal standard on which to base a case for action against them. Soon after the law was passed, however, it was believed by almost all the various interests involved that many of the standards were too rigid.

The passage of the Food and Drugs Act assisted greatly in securing a definite standard for both drugs and foodstuffs, and the persistent endeavor of the proprietary medicine interests, on the one hand, and the manufacturers of foodstuffs, on the other, to obtain permission for the use of certain adulterants, preservatives or admixtures in their products furnishes the best evidence of the importance and necessity of such a law.

1. Thrush, M. C.: A Plea for a More Thorough Course in Practical Pharmacy and Prescription Dispensing in Our Medical Schools, THE JOURNAL A. M. A., Jan. 25, 1908, l, 254.

THE SUFFICIENCY OF THE OFFICIAL DRUGS AND PREPARATIONS IN THE MEDICINAL TREATMENT OF DISEASE

And now, returning to the original question of the title of this paper, every conscientious and scientific physician cannot help but answer that we do possess in the drugs and preparations that are recognized by the U. S. Pharmacopeia and National Formulary a sufficient armamentarium for the medicinal treatment of disease. When we consider that the Pharmacopeia contains 958 drugs or preparations and the National Formulary 437, making a total of 1,395 drugs or combinations of drugs, surely this should be sufficient for any one who desires to treat disease. If a physician cannot relieve a given case with one of these, he could not do so if he had a million to select from. There are few physicians who make use of even one-half of the above list in their routine practice, and the majority do not use one-fourth of this number, a fact to which I know every one will agree. Then why should we desire any larger assortment or why should we order proprietary or nostrum preparations in preference? While scientifically treating disease, the amelioration of objectionable symptoms must not be forgotten; i. e., the patient must not be forgotten. Drugs or preparations should be ordered, the exact composition and physiologic action of which are known. Nature must not be left unassisted in her endeavor to overcome disease, and we should be broad-minded enough to employ any means or agents that may be indicated in a given case, without consideration of any "pathy" or school; in other words, we should not be allopaths, therapeutic nihilopaths or any other "paths," but practitioners of scientific medicine.

The Pharmacopeia and National Formulary should be pruned of the useless drugs and prehistoric mixtures which they contain, and they should not be stocked at each revision with rather exact "imitation" formulas of all the various proprietaries which have become popular since the previous revision. This is a rather poor way to combat proprietary medicine evils and stock formula prescribing, is it not?

There should be frequent analyses made by the various state boards of health of the drugs found in the open market to see that they are up to the pharmacopeial standard.

The U. S. Pharmacopeia and National Formulary furnish all of the tonics, digestants, emulsions, antipyretics, hypnotics, nerve sedatives, cough mixtures and external applications that are needed in the medicinal treatment of disease.

HOW MUCH IS THE MEDICAL PROFESSION RESPONSIBLE FOR THE PREVAILING USE OF NOSTRUMS?

Much deception, prompted by commercialism, is practiced on an unsuspecting profession in introducing new remedies; and various pet schemes, including the giving of stock, commissions, souvenirs, building lots, blotters, literature, etc., are resorted to in order to induce physicians to use such remedies. Often lack of training and discrimination causes physicians to prescribe such remedies, and on solicitation to recommend them to others. Accompanying literature to catch the eye of the laity converts these prescribed semisecret pharmaceuticals into remedies which may be prescribed by the patient. Druggists often aid the laity in the habit of prescribing for themselves; medical journals which admit unethical semisecret remedies into their advertising pages likewise foster this practice. Often physicians thoughtlessly or through laziness or ignorance prescribe secret remedies, thus increasing and maintaining this evil. The remedy lies in educating the profession in the manner that has been suggested before in this article. Hence I feel confident that I voice the sentiments of every conscientious scientific physician when I say that we possess in the drugs and preparations that are recognized by the U. S. Pharmacopeia and National Formulary a sufficient armamentarium for the medicinal treatment of disease, and for the following reasons:

1. All the various proprietaries and secret nostrums as found on the market are merely mixtures or compounds of drugs and preparations as found in the U. S. Pharmacopeia and National Formulary, and they could be easily compounded by any educated pharmacist.

2. These proprietary preparations are manufactured and sold, not for the benefit of either suffering humanity or the doctor, but for the money that can be made out of them for the manufacturer by fleecing the people who are compelled to pay more for this medicine when made under their special proprietary name than it would cost if dispensed by a reputable pharmacist, and with a legitimate profit.

3. Physicians can prescribe these semisecret proprietaries or nostrums only because of inability to prescribe or formulate a proper prescription through lack of knowledge or for pecuniary returns through financial interest in the company that manufactures the medicine.

4. It is a rare exception when it is necessary to resort to a drug or preparation that is not found in the U. S. Pharmacopeia or National Formulary, as all the best drugs are found in these two books in some form or other. It is ethical and proper to use a certain preparation of such drugs as are official, even if the preparation itself is not official.

5. The valuable drugs that are not official, with but very few exceptions, are found in the list of New and Nonofficial Remedies as passed on by the Council on Pharmacy and Chemistry.

6. It is perfectly proper and legitimate to specify a certain firm's make of an official drug or preparation if the physician so desires, as we may have more confidence in the products of certain firms. There is no question that some manufacturers send out much more reliable and active preparations than others. We should use drugs and preparations from reliable sources only, and the price should be a matter of secondary consideration.

Hence, in conclusion, it is rarely necessary for a physician to prescribe a drug or preparation that is not recognized in some form or other either in the U. S. Pharmacopeia or National Formulary; and in the few instances in which such a drug or preparation should be the one prescribed it would be more rarely when it would not be found in the list of New and Nonofficial Remedies as approved by the Council, provided it possesses any medicinal virtues to warrant its use. For all practical purposes, therefore, we can safely limit our prescribing to drugs and preparations recognized by the U. S. Pharmacopeia, National Formulary or Council on Pharmacy and Chemistry of the American Medical Association.

3705 Spring Garden Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FUSSELL AND THRUSH AND ON THE REPORT OF THE COMMITTEE ON THE U. S. PHARMACOPEIA

PROF. JOSEPH P. REMINGTON, Philadelphia, Pa.: If we could have had such an active interest in the Pharmacopeia ten years ago, or twenty years ago, on the part of the medical profession as that shown in this meeting, I am sure that a

great many of the criticisms which have been made on the Pharmacopeia would not have been necessary and therefore I am confident that the Committee on Revision of the United States Pharmacopeia will welcome this active interest on the part of the medical profession. Now the points which were made by Dr. Fussell have been made a number of times before. The one which seems to cause the greatest criticism among the medical profession is that of the nomenclature. Our versatile secretary touched off the question of nomenclature very well this morning, I think, as it affects the medical profession, and I can only repeat that I think the medical profession find a great deal more difficulty in the chemical names than they do in their own. So I don't think they are quite consistent in hammering the Pharmacopeia for its chemical nomenclature. The physicians do not use the nomenclature in their prescriptions. In prescriptions the names of preparations are always abbreviated; even the simple word "tincture" is always "tinct." or "tr.," the entire word "pilula" is never given in prescriptions. I see no reason why physicians cannot abbreviate these long chemical names with equal facility. They particularly mentioned hexamethylen tetramin. There is no reason why the physicians should not abbreviate this word, and write "Hex"; every druggist would understand this. I believe the only exception is in Berks and Lehigh counties, Pennsylvania, where they use the word "hex" in another sense. I think we can all agree that our U. S. P. nomenclature is really not a very serious question. The question of enlarging the scope of the Pharmacopeia by the addition of medical properties comes up at every revision. Certainly there can be no objection if this information can be compressed into sufficient space so as not to make the book too large. If anyone familiar with the subject were to study carefully the pharmacopeias of the world I think that it would be found that nearly all the large pharmacopeias and all the important pharmacopeias of the great countries of the world are books of standards. The U. S. Pharmacopeia is a book of legal standards, especially since it has been adopted by the Food and Drugs Act. It is not intended to express the individual opinions of certain authors as to doses and choice of certain medicines. If it did go into this work to any extent a great outcry would come from all over the country, and there would be far more objection than in keeping it as it is now, a book of standards. I do not suppose that many of us realize the great work that Professor Hallberg is doing as chairman of the Committee on Statistics. It is no small job to compile the statistics for a million prescriptions all over the United States, or even 100,000 or 125,000 and in the short résumé which he gave this morning of the work that has been done I feel very much like telling Professor Hallberg to go ahead and give us by next May, from the large number of prescriptions, an idea of what the country is using, by what the physicians are using. I think that this will be of the utmost value to the next Committee on Revision.

DR. M. G. MOTTER, Washington, D. C.: There is a report of a committee before this Section and some specific action must be taken on it. In view of the fact that the report of the Committee on Pharmacopeia embodies certain resolutions and that they involve a possible expenditure of funds of the American Medical Association, I suggest that these recommendations be forwarded in due course to the Board of Trustees. [Carried.] I am perfectly willing to admit that the medical profession is inconsistent in regard to nomenclature, but the Pharmacopeias are not altogether consistent in this particular. A few weeks ago, while looking through a volume of "The Chemist and Druggist," of London, I came across an article on pharmacopeial nomenclature in which the author, Rudolf, cites the names of several of the quinin salts masquerading in different pharmacopeias and trade journals. He gives the title Quininæ hydrochloridum as being in the British Pharmacopeia published in 1898; chlorhydras quinicus in the Codex Medicamentarius or French pharmacopeia for 1884. Then he gives the title from four trade lists: Quininæ hydrochloras (Howard), Chininum hydrochloricum (Boehringer), Quiniæ hydrochlorid (Whiffen), and Burgoyne caps the climax with Quininæ hydrochlor. It struck me as this question would probably come up here, it might be interesting to run over the pharmacopeial names, and I have arranged them as follows:

U. S. Pharmacopeia, ed. 8 (1890): Quininæ hydrochloras.
German Pharmacopeia, ed. 4 (1900): Chininum hydrochloricum.
Spanish Pharmacopeia, ed. 7 (1905): Chlorurum quinicum.
U. S. Pharmacopeia, ed. 8 (1905): Quininæ hydrochloridum.
Dutch Pharmacopeia, ed. 4 (1905): Hydrochloras Chinini.
Belgium Pharmacopeia, ed. 3 (1906): Chininum Hydrochloricum, Chlorhydras quininæ.
Austrian Pharmacopeia, ed. 8 (1906): Chininum hydrochloricum.
Japanese Pharmacopeia, ed. 3 (1906). Chininum hydrochloricum.
Swiss Pharmacopeia (1907): Chininum hydrochloricum.
French Codex (1908): Chininum monochlorhydricum.
Swedish Pharmacopeia (1908): Chloretum chininicum.

Six out of thirteen pharmacopeias give it Chininum hydrochloricum, while the U. S. P. changed from Quininæ hydrochloras, in 1890, to Quininæ hydrochloridum, in 1905.

DR. H. C. WOOD, JR., Philadelphia: When I was a resident in the University Hospital I remember we had a case of chronic sulphonal poisoning brought in. My chief, who has now passed to the better world, a man whose name is familiar to you all, a man of great intellectual powers, said to me—like most of these patients with sulphonal poisoning, the woman was suffering from insomnia—"I think for her insomnia we will give a little trional." I said, "Don't you think it is rather contraindicated on account of the similarity of the chemical constitution?" He didn't know anything about the mere substitution of the ethyl for the methyl radical. The trional was given. Now that woman died. Whether it was the continuation of the poisonous sulphone through the ignorance of the physician, or whether she would have died because she was already too full of poison, I cannot say, but at any rate he continued pouring into the woman through his ignorance that poison which killed her. My contention is that those names which approximate chemical accuracy suggest to the physician pharmacologic relations. There is another instance in the great popularity of the proprietary veronal. Most physicians associate it pharmacologically with sulphonal because the name sounds so similar, whereas as a matter of fact we have the ethyl carbonate closely related chemically and equally efficacious for about one-fourth the price.

I think that the practice of specifying drugs of certain firms is not only unnecessary but undesirable. If tincture of belladonna is sold as tincture of belladonna it must contain 1/30 per cent. of alkaloid. If it contains more than the Pharmacopeia percentage it is poisonous; if it contains less the man who sells it is liable to prosecution under the national and state laws. All tinctures of belladonna which are sold in the United States contain the same amount of active ingredient, and there can be no reason for preferring one make to another.

Dr. Fussell used a term which is very common in these discussions; he spoke of the Pharmacopeia "recommending" certain drugs, as the compound acetanilid powder. As a matter of fact, the Pharmacopeia recommends nothing. The Pharmacopeia has been made a fetish and we have been taught that we should prescribe only the things taught in the Pharmacopeia, and if the Pharmacopeia names a drug that is a good reason why we should prescribe it. This is an absolutely erroneous conception of the book. The Pharmacopeia is simply a standard whereby if the physician wishes to use a drug he can know just what his patient is getting. I maintain that if the physician wishes to use a drug, whether the rest of the profession regard it as inert or not, he ought to be at least assured that he is getting what he thought he ordered. I believe that every drug used in medicine, whether of value or not, should be in the Pharmacopeia. Of course, this would make a book so big that we would have to build a special library to hold it. At one of the recent meetings of the Philadelphia County Medical Society Dr. Solis-Cohen suggested that an edition of the Pharmacopeia, once published, should always be a standard until it had been revoked; that when the ninth edition of the United States Pharmacopeia is published, the preface should state: "All substances in the eighth pharmacopeia whose standard is not changed in the ninth shall be considered of the strength and purity which is laid down in the last edition of the Pharmacopeia."

J. W. ENGLAND, Philadelphia: I think it would be entirely practicable for the Committee on Revision to frame contractions of the full chemical names of such compounds that would be as indicative of composition as the full names. Thus, hexamin could be used for the official hexamethylenamin, sulpho-

methane for sulphonmethane or sulphonal, sulphoethane for sulphonethylmethane or trional, and acetphenetin for acetphenetidin or phenacetin. In other words, instead of using the full chemical names, employ contractions, and in a short time the medical profession would come to know what they stood for and use them.

DR. HENRY BEATES, Philadelphia: Many of the points have been well taken, but the discussions are dealing largely with effects and ignore causes. The very question of the necessity for the existence of the National Formulary is raised by its containing elixirs that apparently are imitations of certain valuable proprietaries. Proprietaries of intrinsic value must not be swept away in the effort at annihilation of proprietaries that are worthless, and to be in the position of imitating meritorious proprietaries is not a desirable or wise one.

As to nomenclature, yesterday we heard from one of the papers that phenolphthalein is known under some twenty different names, because of proprietary business, in its bad sense. If these things are to be corrected, the question underlying the practice of the prevalence of such evil must receive serious consideration. I believe that the lax patent and copyright laws of this country supply a great opportunity for this undesirable sort of commercialism to thrive. There is nothing in which the possible usefulness of this Section promises so much good as attention to and correction of these lax laws. Both patent and copyright laws are abused here and abroad, and manufacturers are supplied with exceptional opportunity to indulge in unprincipled commercialism, by which the medical profession is forced to play the cat's paw.

The Pharmacopeia, because of expiration of patent, has in it to-day (under its official name of "acetphenetidin") phenacetin, a useful and valuble medicament, of which the manufacturers formerly controlled the cost, thus robbing afflicted humanity of a valuable remedy except at extortionate prices.

The entire Galenic materia medica is seriously affected by the conspicuous absence of official preparations made according to physiologic standardization. Thus the absence of official standardization, not of a certain percentage, but of a uniform degree of strength, invalidates the entire materia medica. Professor Wood just referred to belladonna. I may be a very poorly informed practitioner of medicine, but I did not know until then that the tincture of belladonna could be regarded as a standardized Galenic preparation, representing 10 per cent. of something, and that any pharmacist who gives more or less than that standard is subject to prosecution.

As to naming manufacturers because of tested reliability in certain remedies, this has its advantages and disadvantages, but certain it is that in our present chaotic condition, those physicians who practice medicine for the best interests of their patients must specify the product of some well-known and tested manufacturer. It is to be hoped that the influence of this Section will focus itself at least on the careful study of the all-important matter of patent and copyright law, so that by 1910, when the Committee on Revision of the United States Pharmacopeia will meet, something will have been achieved by which we can have a common standard of physiologic or therapeutic value, to which we can conform in standardizing Galenic preparations.

PROF. CHARLES CASPARI, JR., Baltimore, Md.: As chairman of the subcommittee on nomenclature it has been my privilege for many years to assist in the revision of the Pharmacopeia. The aim of the subcommittee on nomenclature was to place in the Pharmacopeia names that were truly indicative of the character of the product selling under that particular name, making it as simple as possible and yet not in the least destroying its identity. For that reason acetphenetidin and similar names were introduced where it was not possible to use another name, unless the trade-mark name would be adopted. A great deal has been said this morning in regard to either insufficient or objectionable nomenclature of the Pharmacopeia, and yet I think physicians as well as pharmacists will recognize, if they pay attention to the subject, that the names are as simple as it is possible to make them without encroaching on the field of trade-markism, as we might call it. While phenacetin was still a proprietary product, protected by the laws of this country, it was impossible to introduce that name into the Pharmacopeia for the reason that phenacetin was selling at an exorbitant price, much above its real value. The object was to place in the hands of physicians an article of identical composition and merit with phenacetin but at a very much lower price by using the term "acetphenetidin"; the former was selling at 85 cents an ounce, whereas the latter could be had for $3 a pound. Of course, the expiration of the patent on phenacetin has helped the matter largely. I want to assure all physicians in this country that the only object of the Committee on Revision has been to place in their hands names as simple as the particular case would justify and yet truly characteristic of the chemical character of the drug. Objection has also been made by one of the speakers this morning to introducing the elixir of iron, strychnin, and quinin. Perhaps never has a preparation been more largely prescribed than this one by the medical profession. Prior to introduction in the Pharmacopeia probably fifty preparations were offered by various manufacturing houses, no two alike, and often differing greatly in strychnin or quinin content. It was thought desirable to have a preparation so largely used by physicians uniform in composition the country over and have its name indicative of the composition. We have now a solution of true phosphates in such form in the official preparation. There is no denying the fact that the preparation is used in immense quantities; barrels of it are made by manufacturers. While a few physicians still cling to the product of some particular manufacturer, I believe the evil has been abated which required the druggist to carry ten or fifteen brands of the one product, with attendant change, gelatinization, etc., all of which brought pocket-book loss to him and great discredit to the manufacturers and also to the physicians. The fact that the medical schools, unfortunately, do not pay the attention they should to teaching the students of medicine the character and contents of the Pharmacopeia is, I think, recognized. One of the disadvantages under which the medical student finds himself to-day when he leaves the university and starts out in medicine is that he has very little knowledge of the Pharmacopeia and its character, but he is quite familiar in many instances with books which treat largely of prescription-writing and ready-made prescriptions.

DR. JOHN J. TAYLOR, Philadelphia: I feel that I am under the necessity of sounding a somewhat discordant note. I want to say that, in the work of this Section we are not always working along the right tracks. We are not doing what we should to lay the foundation. The place where our preliminary work should be done is before the Council on Medical Education. We want to encourage there a more thorough training of medical students in materia medica and therapeutics. The last speaker has very justly said that, when a medical student passes out of the school, he practically has to learn his materia medica. Students have a little theory given to them, but we have very little training in prescription-writing, whether it be for a single remedy or for a suitable combination of remedies, or in putting up prescriptions. I have observed that those students who have passed a preliminary course in practical pharmacy before taking their medical course have understood the teaching in therapeutics much better than those who have not had such instruction. As physicians we have to deal with real things and we ought to know these things themselves and their peculiar characteristics, so it is not teaching we want so much as training, and that means more than we get in our medical colleges to-day or ever have done. We also need training of the pharmacists. When the physician has prescribed a National Formulary preparation for something which he has heretofore had as a proprietary and gets a muddy conglomeration at a high price instead of a well-made mixture at the proprietary's price, he becomes discouraged and justly so. The National Formulary, as it has developed later, seems to be a list of substitutes for things the physician is already using. I think any substitute for what the physician is using should be eliminated.

DR. L. F. KEBLER, Washington, D. C.: One point made by Dr. Fussell, namely, that certain products should be eliminated from the Pharmacopeia because of their little use appeals to me from one point of view but not from another. When we remember that there are promoters of medicines who take

advantage of every possible situation that presents itself we should be very circumspect about giving any questionable drug standing. For example, phytolacca, referred to by Dr. Fussell, is one of the common constituents of a large number of anti-fat remedies, and I also recall its presence in a so-called magic foot-draft remedy. When these people are given hearings and the worthlessness of the drug pointed out, for the purpose advertised, what do they say? "That is recognized in the Pharmacopeia. It is approved by the medical and pharmaceutical profession." While I knew that caffein was used to a large extent in various combinations I did not think the medical profession was increasing its use. Dr. Hallberg's statement that the use of opium by physicians is apparently decreasing is very gratifying. While the use of opium has not been increasing during the past ten years, judging from the imports, there is still a large amount of opium used improperly, and, moreover, other habit-forming drugs are replacing opium and morphin.

MR. M. I. WILBERT, Washington, D. C.: Where one is absolutely handicapped and has no other recourse for a reasonable standard than the name of the manufacturer, specifying that name may be justified, but where one has a reasonably just standard that can be enforced by law, there is no justification for it. We have at our command the machinery to maintain a standard and every one who is interested in the preparation or use of medicine should be interested in getting that machinery in order and putting the established standards into force. The functions of the retail druggist or of the pharmacist are the preparation, verification, preservation and the dispensing of medicine. For many years he has confined himself largely to the dispensing of medicine and he appears to think that his only function is to dispense medicine on physicians' prescriptions, and the physician, in accepting this limitation, is prescribing preparations of this man's manufacture and that man's manufacture in the mistaken belief that his patient is getting the very best that is to be had. Yesterday morning Dr. Wood showed us that fluid extract of ergot is not fluid extract (Smith) because it comes out of a fluid extract of ergot (Smith) bottle. He showed us that this preparation can be ruined in a few hours and certainly deteriorates in a week or a month, so that if you prescribe any given manufacturer's ergot you are not getting what you think you are getting, but what the pharmacist happens to have in the bottle. Those of you who have seen the Hygienic Laboratory Bulletin on the "Standardization of Digitalis" will appreciate the need of going further than specifying some particular manufacturer's name. You physicians must develop pharmacists in the country, you must develop them to do more than dispense, they must verify and must know how to preserve their medicines. Unless they know how to preserve their medicines and to verify them from time to time you are not getting what you think you are getting because you happen to specify some manufacturer's make. The need for this is becoming more and more apparent and the justice of it is also apparent. The retail druggist is responsible for the things that he is dispensing under existing laws; so that as soon as he removes a cork from the bottle he is responsible for the contents of that bottle, and if he is not capable of verifying it you have recourse under law to compel him to discontinue the business or to improve himself. The medical profession should compel the retail druggists of this country to qualify in such a way that they can verify their medicines and assure physicians they are getting what they are prescribing, and if they confine themselves to the established standards they will get what they expect to get.

PROF. H. P. HYNSON, Baltimore, Md.: The statistics Professor Hallberg is collecting really show very plainly that therapeutic nihilism has not increased; there is still something for the pharmacist to do. Should statistics control the contents of the Pharmacopeia? We have reached that stage in pharmacology where we should seek something higher than that. Its mere local or national popularity does not seem enough to determine whether or not a substance shall be introduced into the Pharmacopeia. It seems to me that it ought to have real pharmocodynamic value. I do not say therapeutic value, because I do not believe therapeutists have reached a point where they have established standards. When an article's place in the Pharmacopeia is dependent on its actual pharmacologic action, which has been established or on its adjuvant use or action, then we shall have established a Pharmacopeia which will be a credit to science and to the age.

MR. F. M. APPLE, Philadelphia: From observations in my store I would attribute the increase in the use of caffein to the commendable custom of the physicians of formulating their own prescriptions in preference to using one of the compound acetanilid mixtures. My experience proves that the caffein is almost invariably prescribed with acetanilid or some other depressing drug; hence the question arises, can the medical men be justly condemned for the increased use of caffein?

DR. C. S. N. HALLBERG, Chicago, Ill.: With reference to the mixtures, there is one point as disclosed by elixir of quinin. iron and strychnin which is that a preparation of that kind cannot be successfully made extemporaneously. If physicians prescribe mixtures of that kind they must be made in advance in order to compare with those made by manufacturers, and therefore the recognition of the formulas in the Pharmacopeia and that applies to a great many preparations of a similar character. Besides, the time does not admit of the expenditure of any particular skill or experience in the preparation of many of these mixtures in ordinary prescription quantities when a larger quantity can be made just as well. The criticism of Dr. Taylor in reference to the National Formulary has been largely exploded. It is not true that the National Formulary has substitutes for proprietaries or that it is based on them. The National Formulary is the survival of a collection made by the American Pharmaceutical Association as far back as 1868 by J. F. Hancock of Baltimore, Md. (who is present here to-day), and for forty years we have been collecting formulas and manufacturers have taken these formulas which have appeared in the proceedings of the American Pharmaceutical Association, sometimes changed the color and flavor and vastly extended the claims for their virtue. That credit is what they are entitled to and nothing more. There is scarcely a preparation which is due to any originality on the part of any of the present proprietary pharmaceutical manufacturers.

With reference to the pharmacodynamic and adjuvant effect of drugs the difference between the pharmacologic and the psychologic is a wide one, and yet there is a very close relationship as illustrated this morning with reference to the extended use of the elixir of lactopeptin. It is sometimes difficult to draw the line as to whether it is the action on the heart and respiration, or whether it is simply the gustatory effect, or the effect of the optic nerve that is supposed to produce the medicinal effect.

DR. M. CLAYTON THRUSH, Philadelphia: When the time arrives that every pharmaceutic manufacturing house in this country adheres strictly to the Pharmacopeia and every pharmacist is a reputable pharmacist and adheres to this standard, it will not be necessary to specify a certain manufacturer's drug. For example, every physician in this room knows that there are different qualities of drugs on the market, that some druggists dispense more reliable drugs than others, that some pharmaceutic firms send out better products than others. I know as a reputable pharmacist that eight prescriptions out of ten specify Squibb's when chloroform is prescribed. I am sorry that physicians have to do this. But the fact remains that they do it, and we know why they do it, and it is perfectly nonsensical to say that they do not do it. I know that Squibb's ether, chloroform and ergot are specified eight times out of ten. I will give a beautiful illustration of this. I was ready to operate on a patient, the physician proceeded with the anesthetic, but he could not get the patient under the effects of the chloroform with the usual quantity and he had to use two or three times the usual quantity for the second stage of anesthesia. This occurred every time this particular make of chloroform was used. Fortunately, in refilling the bottle used on these occasions, instead of Squibb's I noticed the pharmacist gave me chloroform out of a large pound bottle that had been opened and allowed to stand, although it was from a firm considered one of the best firms in this country. It was labeled "U. S. P. Chloroform, For Anesthesia Purposes Only." That is simply one illustration of an occurrence that every practicing physician meets frequently. I don't think there is any

basis for the study of medicine more valuable than a good classical education, except a thorough knowledge of pharmacy. Every man who wishes to practice medicine should take a course in pharmacy. There is a great field in the future for our colleges of pharmacy. Almost all our colleges of pharmacy, with the exception of a few of our largest, are connected with medical schools, and I do not see why even our largest could not do as Harvard and others which confer a combined degree of A.B. or B.S. with the M.D. for a certain course which curtails a year or more than when taken separately. Why could not we combine pharmacy and medicine, likewise giving a little more time than we have been, just the same as the combined M.D. degree and classical degree? That would turn out all men having a good practical knowledge of pharmacy as well as of medicine. Every physician who has graduated in pharmacy will tell you that it has been the greatest help to him in the practice of medicine.

PROF. H. P. HYNSON, Baltimore, Md.: What possible difference could there have been in these chloroforms mentioned by Dr. Thrush?

DR. M. CLAYTON THRUSH, Philadelphia: The chloroform as sent out by this particular firm was not up to the official standard. We required three times as much on the average to produce anesthesia.

PROF. H. P. HYNSON, Baltimore, Md.: Do you mean it was diluted with alcohol?

DR. M. CLAYTON THRUSH, Philadelphia: I do not know, as no chemical test was made to determine this point.

PROF. CHARLES CASPARI, JR., Baltimore, Md.: In reply to the remarks made about co-education of pharmacists and physicians, I would like to say that this is, I believe, prohibited by the very charter of your Association of Medical Colleges. I have been informed by very good authority that the simultaneous attendance of students in schools of medicine and pharmacy is positively prohibited. If the association will recede from that position and allow the students to attend lectures in pharmacy then the ideal condition will prevail.

DR. REID HUNT, Washington, D. C.: There has been considerable discussion in the Public Health and Marine-Hospital Service as to what ether should be used; some manufacturers complained that they were discriminated against, since surgeons frequently specified a certain brand and this was supplied. A number of samples of ether from various manufacturers were bought on the open market and examined. All met the requirements of the U. S. P. There were absolutely no difference between them. Either the physicians were mistaken in believing one to be superior or the tests of the United States Pharmacopeia do not suffice fully to determine the value of the ether. As regards chloroform, it is a question whether the percentage of ethyl chlorid may not be important; if it is, the present requirements in the Pharmacopeia are insufficient.

DR. BERNARD FANTUS, Chicago, Ill.: How many patients of Dr. Thrush showed this peculiarity in reference to requiring three times the usual amount to induce anesthesia? My experience shows that some patients, especially alcoholics, will be refractory to anesthetics.

DR. M. CLAYTON THRUSH, Philadelphia, Pa.: It was tried in fifteen cases. In every case this chloroform showed the same result.

Nutmeg Poisoning.—At the meeting of the Royal Society of South Africa, Oct. 20, 1909, Dr. M. Wilson called attention to the small number of cases recorded of poisoning by nutmeg, which he thought worthy of special remark since the condiment is so widely used. The explanation offered was that the activity of the poison was due to partial germination of the seed, which was rarely the case in the commercial article. In support of this he directed attention to what he considered an analogous case, that of a fir seed (*Dana pitje*) which was largely eaten by children near Cape Town without any bad results, but after partial germination had caused serious consequences. The nutmeg is generally supposed to be a powerful narcotic when taken in large quantities but we have not seen before anywhere this theory of the poison being developed by arrested germination.

METHODS OF SERUM DIAGNOSIS IN BACILLARY DYSENTERY (INFECTIOUS DIARRHEA) IN INFANTS*

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This article deals with a systematic study of certain methods of diagnosis from the blood serum in infants suffering from dysentery (infectious diarrhea). It is assumed from previous work in this field, and is further evidenced by the present study, that this type of summer diarrhea, denominated in the wards of the Boston Floating Hospital "infectious diarrhea," has direct etiologic relation with one or more of the varieties of organisms now grouped under the species name of *Bacillus dysenteriæ*. In all the cases of infectious diarrhea considered, and in the control cases as well, a thorough search has been made in the stools for the dysentery bacillus. It was not deemed advisable, in so far as the serum tests were concerned, to consider varieties of the bacillus beyond the first generally accepted division of these organisms into mannit fermenters (Flexner type) and mannit non-fermenters (Shiga type); a more detailed consideration of the varieties of dysentery bacilli obtained in relation to the clinical aspects of the individual cases will later be taken up by one of us (Schorer).

SERUM DIAGNOSIS BY W. P. LUCAS AND J. G. FITZGERALD

Two recognized methods of serum diagnosis, namely, the reaction of agglutination and the reaction of fixation, and one new method, the reaction of conglutination, have been tried, as far as possible, with the blood serum of each case in conjunction with both a mannit-fermenting (Flexner) and a mannit-non-fermenting (Shiga) variety of the dysentery bacillus. In many cases these tests have been repeated at intervals in the course of the disease.

The agglutination reaction has been employed by all investigators who have studied cases of bacillary dysentery attentively since the first publication of Shiga, who used this reaction as a proof of the etiologic relation of his bacillus to the disease. The value of the reaction in diagnosis, owing to its delayed appearance and its relative infrequency in the disease, would not, by common consent, appear to be great (Shiga,[1] Lentz[2]). The percentage of positive reactions has varied considerably in the hands of various observers, owing largely to individual differences in technic as well as to the dilution accepted as indicative of a positive reaction. No observers, as far as we are aware, have used as uniform a method as would seem desirable (see below under "Technic"). And apart from individual variations in method the following factors would seem of importance in determining the value of the agglutination reaction in dysentery:

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*From the Laboratories of Serum Diagnosis, Harvard Medical School and of the Boston Floating Hospital.

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1. Shiga: Bacillary Dysentery, Osler's Modern Medicine, II, 781.
2. Lentz: Dysenterie; Kolle and Wassermann's Handbuch der Pathogenen Mikroorganismen, 1909, II Ergänzungsband, 391.

1. The susceptibility to agglutination of the organism employed as a reagent; this "agglutinability," we believe, best explains the clumping of certain bacteria by normal sera (Bordet,[3] Levi della Vida[4]). From this aspect the mannit-fermenters, and especially the Flexner strain, are better agglutinators than the non-fermenters (Shiga-Kruse).

2. The relation of the organism employed to the bacillary type causing the infection of the patient under consideration (Lentz,[2] Amako[5]). In this connection it may be noted from Amako's results that the Flexner strain is the most representative mannit-fermenter and agglutinates well with the sera of patients suffering from infection by the other mannit-fermenting types. Our results, then, obtained with the Flexner bacillus may be taken as indicative of a reaction to any one of the mannit-non-fermenters which are the preponderating organisms in infantile dysentery.

The reaction of fixation (Bordet-Gengou) has been employed with success as a means of diagnosis in adult dysentery by Dopter.[6] The reaction was shown in his results to occur with greater constancy and earlier in the disease than the agglutination reaction. It was particularly noted by Dopter that the reaction is present with both mannit-fermenting and mannit-non-fermenting strains, irrespective of which was the causative organism in the case in question. This and similar observations have given rise to the erroneous opinion that the fixation reaction is less specific than agglutination. That such, however, is not the case has been shown by Haendel, who showed that in properly chosen minimal doses the individual strain of bacillus producing the immunity or infection would alone cause fixation with the serum.

The reaction of conglutination has been hitherto largely of interest in the more theoretical studies of the mechanism of immunity. In 1906 Bordet and Gay[7] described a thermostabile (56 C.) "colloidal" substance in bovine serum which has the property of producing a characteristic clumping and increased dissolution of red blood cells that have been treated with both a sensitizer (heated hemolytic serum) and an alexin. A probably analogous substance was described at about the same time by Manwaring.[8] Bordet and Gay outlined in detail the conditions under which this substance acts, and their work was later amplified by Bordet and Streng.[9] A wholly analogous effect by bovine "conglutinin" (Bordet and Streng) on bacteria has since been described by Streng.[10] Streng has clearly shown that this conglutinin bears no relation to the normal agglutinins for various bacteria present in bovine serum which he removes by specific absorption before employing the bovine serum for the reaction. He suggests the possible employment of this reaction for the diagnosis of infections of bacterial origin and mentions positive results obtained with the serum of two cases of typhoid (sensitizer) on adding typhoid bacilli, alexin (guinea-pig) and bovine serum deprived of its normal agglutinins for *B. typhosus*. This article comprises the first systematic study of this method as a means of diagnosis. Tables 1 and 2 present the essential results of our investigation and are preceded by a description of technic and explanation of the tables.

TECHNIC OF SERUM DIAGNOSIS

Blood in all cases was taken from either the finger or toe in amounts varying from 1 to 4 c.c. The method employed to obtain this amount is simple. The hand or foot was immersed in hot water, dried thoroughly, and a bandage applied from the elbow or knee down to the hand or foot. The puncture was made with an arrow-headed lancet. The blood was taken up in an ordinary teat pipette and, as occasion demanded, emptied into a small test-tube. The serum was separated and centrifugalized and the clear serum decanted. The amount of clear serum varied from 0.5 to 2.5 c.c.

The bacteria used for the reactions were in the form of suspensions from large agar cultures (Blake bottles) suspended in 0.9 per cent. salt solution to which 0.1 per cent. formalin had been added. The sterility of the suspension was complete in from forty-eight to seventy-two hours. Each suspension prepared was then standardized by diluting it with salt solution to the opacity of a standard suspension of barium sulphate (0.3 gm. barium sulphate to 100 c.c. of distilled water). We had found from previous experimentation that a formalinized culture was more sensitive to agglutination than a twenty-four-hour living suspension.[11] Such standardized and formalinized suspensions of both the Flexner and the Shiga organisms were prepared at intervals and used for all our tests.

AGGLUTINATION TESTS

Small test-tubes, 7.5 by 1 cm., containing 4 to 5 c.c., were used, and all our dilutions were so arranged as to give us a volume of 1 c.c. of the dilution wanted. Thus, 0.2 c.c. of a patient's serum was put into each of two test-tubes, one for the Flexner series and one for the Shiga series. To each of these was added 1.8 c.c. of 0.9 per cent. saline, giving us in each tube a double amount of 1-10 dilution. One c.c. from each of these tubes was transferred to the tubes to be diluted to 1-20 and 1 c.c. of sodium chlorid solution added, and so on until the limit of dilution desired was obtained. When all the dilutions were made up, two drops of our formalinized, standardized culture of Flexner or of Shiga were added to each tube of a given series. The tubes were placed in a special wooden rack and allowed to stand at room temperature for twenty-four hours before readings were taken. These readings were taken without disturbing the tubes from the time they were set up, so that there was no shaking at any time except at the initial mixing. These readings were considered final and were compared with a control of 1 c.c. of salt solution containing formalinized culture of Flexner or Shiga. The criterion of a positive reaction was complete sedimentation of the bacteria. Our ordinary dilutions were 1-10, 1-20, 1-40, 1-80, 1-100, 1-200, 1-400, 1-800, and if all were positive the test was repeated, if possible, in higher dilutions.

FIXATION

Our steps in this were as follows: 0.1 c.c. of eighteen- to twenty-four-hour guinea-pig serum ("alexin") was

3. Bordet: Studies in Immunity (Gay), John Wiley and Sons' New York, 1909, p. 496.

4. Levi della Vida: Sul fenomeno dell' agglutinazione spontanea di alcuni batteri nelle soluzione saline, Ann. d'Ig. sper., 1905, xv, 413.

5. Amako: Dysenterie Epidemien und Bazillen Typen, Ztschr. f. Hyg., 1908, lx, 93.

6. Dopter: Sensibilisatrice specifique dysentérique, Ann. de l'Inst. Pasteur, 1905, xix, 753.

7. Bordet and Gay: Sur les relations des sensibilisatrices avec l'alexine, Ann. de l'Inst. Pasteur, xx, 1906, 467; Studies in Immunity, p. 363.

8. Manwaring: Auxilysins, Jour. Infect. Dis., 1906, iii, 225.

9. Bordet and Streng: Les phénomènes d'adsorption et la conglutinine du sérum de boeuf, Centralbl. f. Bakteriol. I Abt. Orig., 1909, xlix, 260; Bordet-Gay: Studies in Immunity, Wiley and Co., New York, 1909.

10. Streng: Studien über das Verhalten des Rinderserum gegenüber den Mikroben; Versuch einer neuen sero-diagnostischen Methode, Centralbl. f. Bakteriol. I. Orig., 1909, l, 47.

11. Analogous results as to the superior delicacy of formalinized cultures over living suspensions have been obtained in the case of *B. typhosus* by Dr. M. E. Morse in the Laboratory of Serum Diagnosis, and will shortly be published.

always used. To this was added 0.1 c.c. of patient's serum (heated to 56° for half an hour) plus 0.9 c.c. of 0.9 per cent. salt solution and one drop of the formalinized suspension of Flexner or of Shiga in separate series. This was incubated at 37° for one hour and then the hemolytic serum composed of 1 c.c. of 5 per cent. washed sheep's corpuscles and 1 c.c. of a dilution of inactivated hemolytic serum (s. rabbit > sheep 56°) containing three times the minimal hemolytic dose was added, and the tubes incubated again at 37° until the controls had hemolyzed, i. e., from fifteen to thirty minutes. The following controls were made in each case (1) salt solution was substituted for patient's serum; (2) salt solution substituted for the Flexner or Shiga suspension; (3) a number of sera were tested at the same time, and where there were positive as well as negative fixations the negative serums acted as complete controls. Readings were taken as soon as the controls showed complete hemolysis, or at the end of one-half hour. In many positive cases complete fixation (absence of hemolysis) was also present at the end of twenty-four hours, but this was not considered necessary for a positive reaction; a "partial fixation" was noted where there was a marked difference between the controls and the tubes being tested, but such partial fixation was estimated only when the controls were completely hemolyzed.

CONGLUTINATION REACTION

We prepared our bovine serum for the tests by removing the normal agglutinins by absorption, by repeatedly adding formalinized suspensions of Flexner and Shiga alternately for periods of twenty-four hours each at 0°, centrifugalizing and filtering each time through filter paper until the serum failed to agglutinate either strain employed. One tenth c.c. of this bovine ("x") serum (conglutinin) was used in each experiment, plus 0.1 c.c. of twenty-four-hour guinea-pig serum (alexin) and a dilution of the patient's serum prepared as for a simple agglutination test. In these tests three drops of our standardized, formalinized culture was added. Controls with (1) bovine serum ("x") alone; (2) alexin alone; and (3) patient's serum alone, i. e., simple agglutination tests, were made, also (4) controls with salt solution instead of patient's serum. In this, as in the fixation tests, a number of sera were tested at the same time, so that the negative cases also acted as controls. The tubes were allowed to stand for twenty-four hours at room temperature, and then final readings were taken. In a few cases definite changes were noted at the end of a few hours, but most satisfactory results are to be derived from taking readings at the end of eighteen to twenty-four hours. Positive readings are those in which there is complete clearing of the tube with the organisms in flakes or granules, either clinging to the sides of the tubes as granular material or at the bottom as flaky granular sediment.[12] The clearness of the tube in comparison with the characteristic opacity of the controls is quite striking. No reaction was considered positive unless the tube was completely clear; partial clearing was not accepted at all.

BACTERIOLOGIC INVESTIGATION BY E. H. SCHORER

In the bacteriologic examination of the stools the following method was used:

Stools were received on sterile napkins from 8 a. m. to 6 p. m. at the Laboratory of the Floating Hospital directly from the wards, and those stools examined which showed mucus, blood or pus, except in the control cases, in which any specimens that might be obtained were examined. Repeated examinations were made until a considerable number of cultures of *Bacillus dysenteriæ* were obtained in the positive cases. In a number of cases stools were examined even after a number of isolations had been made, so that the relative frequency of *Bacillus dysenteriæ* from day to day might be determined.

Suspensions of favorable material were made in bouillon, after which they were allowed to stand for a few minutes, then a series of plates, seven to eight in number, were made. These were then incubated for twenty-four hours, after which all colonies resembling *Bacillus dysenteriæ* were picked off into glucose, semi-solid medium, prepared after the method of Hiss and titrated to 1.5 per cent. acid. Twenty-four hours later all cultures not showing gas or motility were transferred to litmus milk. It very frequently happened that organisms which did not produce gas in the regular manner would show gas on stirring with a platinum needle. Such cultures were rejected. After twenty-four-hour suspension in litmus milk all cultures not coagulating the milk were transferred to agar slants, and from these, when twenty-four hours old, the morphology and Gram stain was determined. All cultures of Gram-negative bacilli were transferred to mannit, glucose, saccharose and dextrin serum-water media. Inoculation into gelatin and Dunham's solution were also made. Observations were daily made on the different sugars, and on the gelatin and Dunham's solution after ten days' incubation. Certain isolations from each case which up to this time had shown the cultural characteristics of *Bacillus dysenteriæ* were tested for their agglutination with two normal horse sera and with antidysenteric sera obtained from Dr. Flexner, the same being called "anti-Shiga" and "anti-Flexner" serum. These agglutinations were made from cultures on agar slants twenty-four hours old suspended in normal salt solution. Dilutions of the different sera were made with normal salt solution to 1-10, 1-20, 1-40, 1-100 and 1-200. Macroscopic agglutination tests were made by taking 1 drop of the suspended bacilli, 1 drop of the different dilutions of sera and 8 drops of normal salt solution to make 1-100, 1-200, 1-400, and 6 drops of salt solution to make 1-800 and 1-1600 dilutions, so that the suspensions were all fairly uniform in amount, varying at most 2 drops. These were then incubated for one hour, after which they were allowed to stand at room temperature for twenty-four hours, when the readings were made. In some cases where there was doubt, microscopic examinations were made. Inasmuch as some of the organisms were agglutinated by normal horse sera as high as 1-50, no agglutination tests lower than 1-100 were considered of diagnostic value.

Discussion of Tabulated Results

Table 1 includes 45 cases studied, in which the clinical history and diagnosis indicates infection with *B. dysenteriæ*. In 38 of these cases (84.4 per cent.) the dysentery bacillus was actually obtained. Of these, all but two had shown blood in the stools at some time. The various serum reactions were positive at some time in the disease in the following percentages of cases:[13]

12. This adhesion to the side of the tube was especially emphasized by Bordet and Gay in their work with red blood cells.

13. No doubtful reactions are included in the following estimations. They will be found, however, in all instances, to preponderate in the positive cases.

Agglutination to Flexner strain positive in 25 of 45 cases tested = 55.5 per cent.

Agglutination to Shiga strain positive in 12 of 45 cases tested = 24.4 per cent.

Fixation to Flexner strain positive in 18 of 43 cases tested = 41.8 per cent.

Fixation to Shiga strain positive in 19 of 42 cases tested = 45.2 per cent.

Conglutination to Flexner strain positive in 24 of 38 cases tested = 63.1 per cent.

Conglutination to Shiga strain positive in 8 of 37 cases tested = 21.6 per cent.

If we limit our estimation to those 38 clinically positive cases from which *B. dysenteriæ* was actually isolated, the relation of percentages of positive results is but little changed:

Flexner agglutination positive in 57.8 per cent.
Shiga agglutination positive in 26.3 per cent.
Flexner fixation positive in 43.2 per cent.
Shiga fixation positive in 47.2 per cent.
Flexner conglutination positive in 60.6 per cent.
Shiga conglutination positive in 21.8 per cent.

Before considering further the comparative value in diagnosis of the three methods, we may first summarize the results obtained in the cases in which the clinical history did not indicate an infection with the dysentery bacillus (Table 2).

TABLE 1.—CASES IN WHICH THE CLINICAL HISTORY INDICATES AN INFECTION WITH B. DYSENTERIÆ

Case No.	Clinical Diagnosis.	Day of Disease.	No. Days Blood Found in Stools.	No. of Stools Examined. m=Mucous. b=Bloody. f=Fecal.	Tubes of B. Dysenteriæ and Character.§	P=Positive. N=Negative. Agglutination.† Flexner.	Agglutination.† Shiga.	Fixation. Flexner.	Fixation. Shiga.	Conglutination.‡ Flexner.	Conglutination.‡ Shiga.
1	Infectious diarrhea	10	10	1 b & m	1 M.	P 100		P		P 100*	
		14				P 320+	P 20+				
2	Infectious diarrhea	9	2	2 b & m	15 M.	P 80		N		P 100	
		12				P 80	P 10+	P	N	P 200+	P 200
		15				P 80	P 40+	P	P		
5	Acute infectious diarrhea	9	2	1 b & m	2 M.	P 30	P 120+	P	P		
7	Acute infectious diarrhea	6	4	2 b & m	25 M.	P 320	P 40+	N	N	P 200	P 200
		7				P 160	P 80	P	P		
14	Acute infectious diarrhea	1	1	2	24 M.	N 10+	P 20				
15	Infectious diarrhea	5	3	2 m.	16 M.	P 40+	P 40+	P	P		
16	Infectious diarrhea	21	3	2 b & m	5 M.	P 400	P 200+	?	?		
17	Subacute infectious diarrhea	14	1	2 m.	9 M.	P 100+	P 40+	P	P		
19	Acute infectious diarrhea	9	3	6 b & m	1 M.	P 40	P 40	P	?		
		24				N 10	N	P	P	P 400*	P 10
20	Chronic intestinal indigestion	12	4	2 m.	3 M.	N 10+	P 20+	P	?		
		24				N 20+	N 10	N	P	P 800*	P 20
21	Infectious diarrhea	3	2	4 b & m	8 M.	N	N	P	?		
		14				P 80+	N	P	P	P 100	N
24	Infectious diarrhea	8	2	3 b & m	8 M.	P 100+	N	N	N	P 200	N
25	Infectious diarrhea	2	0	3 m.	19 M.	N	N	P	N	P 100	N
		8				P 100+	N	P	P		
27	Infectious diarrhea	4	4	1 m.	3 M. N	N	N	N	N	? 20	N
29	Infectious diarrhea	7	3	5 b & m	2 M. N	P 100	N	N	?	P 400	N
33	Acute infectious diarrhea	6	6	3 b & m	31 M.	N	N	N	N	N	N
		12				P 100+	N			P 400	N
34	Infectious diarrhea	17	Pus.	5 m & b	13 M.	N 10+	N	N	N	P 500	N
35	Acute infectious diarrhea	5	0	4 m & b	12 M.	P 40+	N	N	N	P 400	N
		16						N	N		
36	Infectious diarrhea	10	5	4 b & m	7 M.	P 200+	N	P	P	P 800	N
38	Infectious diarrhea	8	2	3 b & m	8 M., 3 M. N.	N	N	?	?	N	N
40	Infectious diarrhea	8	8	1 m.	16 M.	N	N	N	N	P 100	N
41	Infectious diarrhea	7	7	2 m.	5 M.	N	N	N	N	N	N
		14				P 80+	N	N	N	P 400	N
44	Infectious diarrhea	6	3	2 m & b	7 M.	P 40	N	P	N	P 100	N
42	Infectious diarrhea	7	4	2 b & m	19 M.	N 10+	N	N	N	N	N
		10				N	N			N	N
47	Infectious diarrhea	9	And pus.	4 b & m	41 M.	N	N	N	N	? 40	N
48	Bronchopneumonia; infectious diarrhea	3	3	1 b & m	7 M.	N	N	N	N	? 20+	N
49	Infectious diarrhea	12	7	1 m.	14 M.	P 80+	N	N	N	N	P 10+
50	Infectious diarrhea	2	0	2 m.	10 M.	N 10	N	N	N	? 20	N
57	(Infantile paralysis) intercurrent infectious diarrhea	4	?	2 b & m	5 M.	N	N	N	N	N	N
59	Infectious diarrhea	21	9	4 b & m	2 M. N.	N 20	N	P	P	? 20	N
60	Infectious diarrhea	12	8	4 m & b	4 M.	P 80	N	P	P	N	N
61	Infectious diarrhea	12	6	5 m.	1 M.	N 10	N	N	N	P 800	P 20
64	Infectious diarrhea	9	8	2 m & b	25 M.	N	N	N	P	P 800	P
62	Infectious diarrhea	9	9	1 m.	2 M.	P 100+	N	P	P	? 40	N
26	Infectious diarrhea	35	3 ?	3 b & m	27 M.	P 100	N	N	N	P 200	N
		50				P 80+	N 10	N	P		
28	Infectious diarrhea	7	3 ?	7 b & m	2 M.	P 40+	N	N	N	N 10	N
		17				P 40	N	P	P	P 800	P 40*
31	Infectious diarrhea	4	0	5 b & m	20 M.	N	N	N	P	N	N
11	Scurvy. Infectious diarrhea	3	3	3 b & m	0	P 40	N 10+	N	N	P 200	P 200
8	(Intestinal indigestion.) Recovered. Infectious diarrhea	60	60	3 f	1 M.	N 10+	N	N	N	P 400	N
45	Infectious diarrhea	3	3	2 f	0	N	N	N	N	N	N
		9				N 10	N	N	N	P 100	N
46	Infectious diarrhea	8	?	8 b & m	0	N	N	N	N	? 20	N
		14				N	N	?	?	P 200	N
9	(Indigestion.) Convalescent. Infectious diarrhea		0	1 f	0	P 80	P 40	P	P		
18	Infectious diarrhea. Recovered.	30	0	1 m.	0	P 200+	P 200+				
22	Lobar pneumonia. Infectious diarrhea	1	1	4 b & m	0	N	N	P	?		
		12				N	N	P	P	? 40	N
23	Infectious diarrhea	4	4	2 m.	0	N 10+	N 10	N	N	P 200	N
		6				N 10	N	N	N		

§ In this column M stands for mannit-fermenters, M N for mannit-non-fermenters, and O for no *B. dysenteriæ*.

† Reactions to the Flexner type of 1-40 (in one instance 1-30) and above are called positive ("P"); with the Shiga reaction at 1-20 are positive. In each case the high limit of agglutination is given except where the figures are followed by an asterisk, in which cases it was not obtained. A plus sign (+) following the figures indicates that partial reactions were obtained in higher dilutions. When "Negative" alone is given it indicates that no action was obtained in the lowest dilution (1-10). The interrogation point (?) is used to indicate partial reactions.

‡ 1-80 and above constitutes a positive reaction to Flexner; 1-20 and 1-40 (indicated by the interrogation point) are doubtful (as having been found to occur in a few control cases.) A dilution of 1-10 and above with Shiga is positive. These limitations are of necessity arbitrary but are apparently borne out by our controls which are the only data on this subject as yet in existence.

Fifteen cases were clinically negative, from one of which only was the dysentery bacillus isolated. In these cases the reactions were positive as follows:

Agglutination to Flexner positive in 1 of 15 cases tested = 6.6 per cent.

Agglutination to Shiga positive in 0 of 13 cases tested = 0 per cent.

Fixation to Flexner positive in 4 of 14 cases tested = 28.5 per cent.

Fixation to Shiga positive in 0 of 14 cases tested = 0 per cent.

Conglutination to Flexner positive in 0 of 11 cases tested = 0 per cent.

Conglutination to Shiga positive in 0 of 10 cases tested = 0 per cent.

Comparing the results from the two sets of cases we find:

As regards the Flexner strain of bacilli:

1. Agglutination occurs rarely in negative cases (6.6 per cent.) and frequently in cases of dysentery (55.5 per cent.). Fixation occurs not infrequently in negative cases (28.5 per cent.), but more frequently in positive cases. Conglutination does not occur in the negative cases but occurs in 63.1 per cent. of the positive cases.

TABLE 2.—CASES IN WHICH THE CLINICAL HISTORY DOES NOT SUGGEST INFECTION WITH B. DYSENTERIÆ

Case No.	Clinical Diagnosis.	Day of Disease.	No. Days Blood Found in Stool.	No. of Stools Examined. m=Mucous. b=Bloody. f=Fecal.	Tubes of B. Dysenteriæ and Character.	P=Positive. N=Negative. Agglutination. Flexner.	Agglutination. Shiga.	Fixation. Flexner.	Fixation. Shiga.	Conglutination. Flexner.	Conglutination. Shiga.
3	Feeding		0	2 f m.	0	N 20+					
4	Feeding	4	0	1 f m.	0	N		N	N	N 10	
13	Feeding		0	1 f	0	N 10	N 10	?	?		
12	Chronic intestinal indigestion	60	60	1 f	0	N 10	N 10	?	?		
30	Chronic intestinal indigestion. (Diarrhea.)	? +7	0	4 m.	0	N	N	N	N	N	N
						N	N	P	N	? 40	N
32	Gastrointestinal indigestion	3 7	0	2 f m.	0	N	N	P	?	N	N
			?			N	N				
39	Feeding		?	1 m b.	0	N	N	N	N	N	N
43	Acute intestinal indigestion	8	0	3 f m.	0	N	N	P	N	? 20	N
		12				N	N	P	N	? 40+	N
32	Intestinal indigestion	19	0	2 f m.	0	N	N	N	N		
53	Feeding	21	0	1 f.	0	N	N	N	N	N	N
54	Intestinal indigestion		0	1 f.	0	N	N	N	N	N	N
55	Feeding	60	0	f.	0	N	N	N	N	N	N
56	Intestinal indigestion		0	f.	0	N 40	N	P	N	? 40	N
58	Pneumonia		0	f m.	0	N	N	N	N	N	N
37	Feeding	6	2	2 m.	? M.	N	N	?	N	N	N

2. As regards the Shiga strain of bacilli: Positive reactions do not occur in negative cases. In the positive cases agglutinations were present in 24.4 per cent., fixations in 45.2 per cent. and conglutinations in 21.6 per cent.

It is impossible to say to what extent the reaction of the Flexner strain in low dilutions to the sera of supposedly non-infected cases is due to the agglutinability of the organism and to what extent to the presence of saprophytic or mildly infecting mannit-fermenters in the body. That such organisms are at times present has been shown and was true in one of our negative cases (No. 37), which case, however, failed to give any serum reaction. An attempt to avoid such reactions has been made by placing the minimal positive figure to Flexner at 1-40, and even at that dilution one undoubtedly negative case (No. 56, marked "Pos.") gave a reaction. It would not, however, seem fair to rule out all the positive cases in which reaction was obtained at 1-40 only, although such a division would further emphasize our most novel contribution, the superior value in diagnosis of the new conglutination reaction. The agglutination of the Shiga type would seem to be due to "common" agglutinins rather than to real infection with this variety of the bacilli, as it was found in 3 only of the 38 bacteriologically positive cases (27, 29, 38), in no one of which, curiously enough, was any reaction to the Shiga bacillus obtained.

The occurrence of positive fixation reactions to Flexner in over a quarter of the negative cases is not easily explainable. The fact that it occurs more often in positive cases adds little to its diagnostic value. Had it been possible to employ several doses, a minimal dose for positive cases would doubtless have given no reaction in negative cases. At any rate, the occurrence of fixation with the Shiga strain in even a higher percentage of the positive cases, whereas it did not occur in negative cases, would indicate that this organism is better for such tests.

It is already evident that the conglutination reaction is superior to the other two tests in the diagnosis of dysentery infection, from the standpoint of its non-occurrence, at the arbitary limit chosen, in control cases, the high percentage of occurrence in positive cases, and as the relatively better indicator of the bacillary type of infection concerned, judging from the low percentage of occurrence of the reaction to Shiga (21.6 per cent.) and the high occurrence to Flexner (63.1 per cent.) in these cases, due to mannit-fermenters.

It may be well at this point to reiterate that the conglutination reaction is not to be confused with agglutination. This is evident not only by the different appearance of conglutination (flecks on side of tube), but by certain other data from our tables: Thus, in 29 estimations in which either or both agglutination and conglutination were positive to the Flexner organism, conglutination was present (often 1-400 or 1-800) and agglutination absent in 11 instances; conglutination was present in higher dilutions (from two to twenty times) in 11 instances. The disproportion in percentages of reactions to the Flexner and Shiga strains is also greater with conglutination.

The striking superiority of the conglutination method as a means of diagnosis is further evident in considering the time of occurrence of the various reactions in the course of the disease. It is admitted by Shiga and others that few positive agglutination reactions can be expected before the second or third week in the disease; it is this fact in particular which renders the test of little value in the diagnosis of infants in whom the malady is characteristically acute. In Table 3 are summarized results

from our tables as regards the percentage of positive reactions according to days of the disease, obtained with the Flexner strain and by the three methods:

TABLE 3.—PERCENTAGE OF POSITIVE RESULTS TO FLEXNER ORGANISM OBTAINED IN RELATION TO DAY OF DISEASE

	Agglutination		Fixation		Conglutination	
	Number		Number		Number	
Days	%Pos.	Estimations	%Pos.	Estimations	%Pos.	Estimations
1- 4	9	11	27	11	50	6
5- 8	56	16	28.5	14	60	10
9-12	59	17	53.3	15	72.7	11
13-16	75	6	60	5	66.6	3
17+	54	11	44.4	9	100	6

In respect to early diagnosis the conglutination is thus markedly superior to the other two methods. The apparent superior value of fixation over agglutination (27 per cent. to 9 per cent.) in the first four days is fictitious, as a positive reaction was obtained in 28.5 per cent. of the negative cases. The results with the Shiga organism show a similar course, except that they are lower in percentages, with the exception of the fixation reactions. The conglutination with Shiga is relatively and absolutely (with the exception of the initial days) lower than with the other reactions.

TABLE 4.—PERCENTAGE OF POSITIVE RESULTS TO SHIGA ORGANISM OBTAINED IN RELATION TO DAY OF DISEASE

	Agglutination		Fixation		Conglutination	
	Number		Number		Number	
Days	%Pos.	Estimations	%Pos.	Estimations	%Pos.	Estimations
1- 4	8	11	0	9	11.1	9
5- 8	19	16	21.4	14	9.9	11
9-12	27	15	45.4	11	18.1	11
13-16	50	6	60	5	0	3
17+	27	11	62.5	8	42.8	7

CONCLUSIONS

Of 45 cases of infantile dysentery ("infectious diarrhea") dysentery bacilli were isolated in 38 cases (84.4 per cent.). In 35 of these bacteriologically positive cases mannit-fermenting strains only were isolated. The mannit-non-fermenting variety (Shiga) was isolated in 3 cases, in one of which it was found in conjunction with fermenting strains. Dysentery bacilli (acid mannit) were found in one of 15 control cases.

Evidence of reaction on the part of each patient to either mannit-fermenting or mannit-non-fermenting types of dysentery bacilli was sought in the blood serum. In every case, so far as practicable, three methods of serum diagnosis were employed, the well-known reactions of agglutination and of fixation, and one novel reaction, the reaction of conglutination (Bordet and Gay, Streng). The serum in many cases was tested at intervals in order to determine the time of occurrence in the disease of a positive reaction by each method.

Reactions with the Flexner strain were much more frequent than those with the Shiga strain; this is owing not only to a direct relation to the organisms producing the infections under consideration, but also, in all probability, to a greater agglutinability of the Flexner organism.

In the doses employed, fixation reactions were obtained with the Flexner, but not with the Shiga strain in over a quarter of the control cases (28.5 per cent.). It was found with both Flexner and Shiga much more frequently (50 to 60 per cent.) in the positive cases subsequent to the first week.

A positive agglutination reaction was obtained in one control case to Flexner; it occurred in 55.5 per cent. of the positive cases with Flexner ranging from 9 per cent. during the first four days to 75 per cent. at the third week (thirteen to sixteen days). In about half as many cases a reaction was obtained with Shiga.

No positive conglutination reaction was obtained in control cases. The reaction was present more frequently than either agglutination or fixation during the disease (63.1 per cent. to Flexner). In addition, conglutination was obtained with this organism in 50 per cent. of the cases during the first four days of the disease. Reactions with the Shiga type as given by conglutination were absolutely and relatively fewer than by the other methods. This would seem to indicate a more absolute specificity for this reaction.

It would seem, then, that in the conglutination reaction we have a means of serum diagnosis in infections by the dysentery bacillus which is far superior to any other as yet devised. The further investigation of this new reaction as applied to diagnosis of other bacterial infections is of immediate interest.

In conclusion, we wish to express our thanks to Dr. F. P. Gay for suggesting this investigation and for advice during its pursuit.

SCOPOLAMIN AND MORPHIN IN NARCOSIS AND IN CHILDBIRTH

Report to the Council on Pharmacy and Chemistry

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[The following report was submitted to the Council on Pharmacy and Chemistry of the American Medical Association, which authorized its publication.
W. A. PUCKNER, Secretary.]

E. Schmidt isolated scopolamin from several solanaceous plants and described it about ten years after Ladenburg had obtained hyoscin from the mother liquors in the manufacture of hyoscyamin. Schmidt's studies were more complete and exact than those of Ladenburg, and the name scopolamin is now applied correctly to the substance for which Schmidt first gave the true formula, $C_{17}H_{21}NO_4$, Ladenburg having given the formula for hyoscin, incorrectly, as $C_{17}H_{23}NO_3$. The term scopolamin was at first applied to levo-rotary hyoscin by Schmidt, while Hesse called the racemic form atroscin, and this term is still used commercially by Merck.

The scopolamin, or hyoscin, sold was often impure, and, since different individuals showed marked differences in reaction even to the pure substance, dependent on a variety of conditions which will be discussed later, certain investigators maintained for a time that scopolamin and hyoscin were not identical, at least in physiologic action, but this question may be considered as definitely settled now, and chemists and pharmacologists agree that scopolamin and hyoscin are identical, and it may be taken that whatever is said here concerning scopolamin is intended to apply equally to hyoscin.[1]

The abuse of scopolamin in anesthesia has arisen largely through a misunderstanding of its pharmacologic action, and, since an understanding of these actions is essential to a comprehension of the question at issue, they will be summarized briefly before the general question of the use of scopolamin and morphin in anesthesia is considered.

PHARMACOLOGIC ACTIONS

Kobert[2] states that scopolamin exists in the optically active and inactive forms. Large doses act like atropin

1. For a discussion of this point, see THE JOURNAL, Dec. 21, 1907, p. 2103.
2. Pharmakotherapie, Second ed., p. 481.

on the pupil, accommodation, skin, heart, lungs, intestines and on all glands, but quite small (therapeutic) doses have a different action; thus the vagus is slightly stimulated, not depressed, and the pulse rate is therefore slowed, and only after large doses is there vagus paralysis. Small doses abolish cerebral excitement, this narcotic action being so strong that the maximal dose at first was placed at 0.5 milligram (1/130 grain) in all countries, but now, unfortunately, and without sufficient reason, this amount has been doubled. Kobert believes this larger dose to be applicable to the optically inactive form alone.

Kochmann states that small doses stimulate the vasomotor center, with a rise of blood-pressure and little change in the pulse rate; large doses cause a fall of blood-pressure from injury to the excitomotor apparatus in the heart. Moderate doses cause vagus paralysis in the rabbit, but this does not follow the use of even large doses in the dog. He states that scopolamin has no sedative action on the rabbit, while in man and the dog it induces sleep without analgesia.

Normal dogs survived enormous doses of scopolamin, and only those which had been previously injured succumbed. Normal frogs could not be killed by the largest doses.[3] The rabbit exhibits primary paralysis of respiration, as man does, but man suffers no injury from therapeutic doses. Scopolamin is excreted by the kidneys.

These results of Kochmann's are confirmed for the greater part by Kionka (1908), but his results with dogs were slightly different, in that Kionka observed some analgesia and two distinct types of action, some becoming somnolent at once, while others exhibited restlessness, incoordination, hallucinations and sank to sleep gradually.

Kionka also tested the solutions which Kochmann had used two years previously and found no quantitative or qualitative differences in physiologic action, though the optically active had become optically inactive. Kionka also compared the physiologic actions of optically active and inactive scopolamin in freshly prepared solutions and could detect no essential difference between them, but differences were seen in the actions of the same specimen of scopolamin on different individuals of the same species. These differences in individuals were perceptible in the frog, and, becoming more pronounced with the cerebral development of the species, were more marked in the dog than in the rabbit, and, of course, attained their maximum in man.

Ernst perfused the spleen and kidney with solutions of scopolamin of various concentrations, but there were no constant effects on the blood vessels in the series of twenty-two perfusions. Cushny found that levo-rotary hyoscin acts twice as energetically as the racemic form on the terminations of the secretory fibers in the salivary glands and on the inhibitory fibers in the heart, but that they act alike on the central nervous system in man and other mammals, and on the terminations of the motor nerves in the frog, but that they do not act on the central nervous system of the frog even with the largest doses.

The physiologic actions of morphin are so well known that they do not require exhaustive discussion here.

Schneiderlin, Korff and Blos were the earliest advocates of the use of scopolamin and morphin in narcosis, and their statements of the physiologic actions and antagonisms of these two alkaloids have been summarized by Kochmann about as follows:

1. Morphin slows the pulse; scopolamin increases the rate.
2. Morphin slows the respiration and renders it shallow; scopolamin causes it to become deeper and quicker.
3. Morphin paralyzes sensory nerves; scopolamin paralyzes the motor.
4. Morphin induces miosis; scopolamin, mydriasis.
5. Morphin is a vasodilator; scopolamin, a vasoconstrictor.
6. Morphin leaves the secretions unchanged; scopolamin paralyzes them.

The synergistic action in narcosis and the wide-spread antagonisms of side actions have been the chief arguments used by Schneiderlin and Blos in support of their claims concerning the value of the combination, but it is hardly necessary to say that the antagonisms are more apparent than real, or that they are in part purely imaginary. Thus, while morphin is, indeed, a miotic and scopolamin a mydriatic, the action of morphin is purely a central one, while the mydriatic action of scopolamin is purely peripheral. As to the paralysis of the sensory endings, it may be said that there is no evidence in the literature of any such action from morphin, and, on the contrary, it is well known that its analgesic action is purely central, while the paralysis of motor endings by available doses of scopolamin occurs only to a very limited extent, and then to the detriment of the heart.

There is no antagonism between scopolamin and morphin on the respiration in the doses often used by Schneiderlin, Korff and Blos. The effects of morphin on the circulation, according to Sollmann,[4] are complicated and variable and of but little importance, as they are pronounced only with very large doses. The effects of scopolamin and morphin on the pulse rate are alike quite as often as they are unlike.

Since the recommendation of scopolamin with morphin was based on such a complete misconception of true conditions, it is not surprising that, after the sacrifice of perhaps thirty lives (and just how many no one can say positively), we are back to almost the identical position in which we should have been but for the unfortunate enthusiasm of the early advocates of this combination; i. e., its use preliminary to inhalation anesthesia—precisely the object which Schneiderlin had in view when he administered the very first dose.

Those who wish to pursue this phase of the question are referred to the papers of Kochmann, Kionka, H. C. Wood, Jr., Cushny, de Stella and others who have studied the pharmacologic actions of these two drugs.

Schneiderlin was led by his observations of the effects of scopolamin on the insane to use scopolamin and morphin for the purpose of reducing to the minimum the amount of chloroform required for anesthesia in the case of a patient suffering from carcinoma of the breast. The results so far exceeded his expectations that he experimented further and found that scopolamin and morphin alone sufficed in some cases for light anesthesia. He gave amounts up to 2.5 milligrams (1/25 grain) of scopolamin and 7 centigrams (1 1/6 grains) of morphin in the space of an hour and fifteen minutes.

3. Githens reported a case in which 4/5 of a grain (52 mg.) of scopolamin had been taken at one dose without injury. The results in this case have been widely quoted, but the evidence concerning the actual dose is circumstantial, the patient having taken all that was left after previously using some of the solution. The solution was not sterile and it had been kept standing for some time. Finally, the precise quantity originally present in the bottle is not vouched for by Githens.

4. Text-book of Pharmacology, Second ed., p. 186.

Although he found the effects of scopolamin variable and his observations extended only to some ten cases, he drew rather broad deductions, concluding that scopolamin and morphin are not dangerous; that the unforeseen accidents of chloroform inhalation were thereby avoidable; that the constant attendance of the physician is unnecessary, merely an attendant to be at hand in case the tongue should fall back into the throat and the respiration cease; the condition of the pupils was urged as a guide to the administration of the two drugs, than which, as we have seen, nothing could be more fallacious.

This paper of Schneiderlin's is not readily accessible to the general reader, in this country at least, and it is remarkable how considerately the average critic has dealt with Schneiderlin's reasoning and deductions.

I believe that we should be inclined to consider as little less than reckless one who would pronounce a new anesthetic harmless, because ten patients had survived its administration. Apparently Schneiderlin had no idea of its possibilities for degenerative changes on the internal organs. He even went so far as to advise initial doses of 1 milligram of scopolamin and 3 centigrams of morphin if in haste to operate. It must be said, in justice to Schneiderlin, that he did not pretend to have perfected the technic of scopolamin-morphin anesthesia.

Schneiderlin's truly remarkable announcement was soon followed by observations by other surgeons. Blos took up the investigation within a month of the appearance of Schneiderlin's paper and about two years later he published his results in 105 cases. Blos repeats the fallacious statements made by Schneiderlin concerning the antagonistic actions of the two alkaloids, and, despite one death in his series, which he attributed to an accident that could be avoided thereafter, he commended the method warmly. Blos gave even more morphin than Schneiderlin had done—up to 12 centigrams (2 grains) in two portions—and was more enthusiastic in his praise of the combination. In this connection it is interesting to note that about three years later Blos wrote to de Maurans, stating that he rarely used the method after leaving the hospital.

Korff reported on 80 cases in which he used scopolamin and morphin, employing doses of 1.2 milligrams (1/50 grain) of scopolamin and 3 centigrams (½ grain) of morphin in three portions of 0.4 milligram (1/150 grain) scopolamin and 1 centigram (1/6 grain) morphin each. Korff modified this dose somewhat after about a year, but still adhered to doses that have been abandoned by conservative surgeons. The use of such a dangerous combination could hardly fail to cause a number of deaths, and there was the inevitable reaction, many abandoned the method altogether, while others continued to use it in a modified form.

Disregarding the early methods, which no longer obtain among well-informed surgeons, but which are considered in order to gain a better understanding of the question, we will discuss the use of scopolamin and morphin preliminary to general anesthesia and to induce the so-called twilight sleep in obstetrics.

SURGICAL USES

The principal advantages and disadvantages have been observed by numerous investigators, and it is useless to enumerate these observations in each case. Therefore the opinions of the majority are considered collectively, except when it may be necessary to call attention to opposing views.

ADVANTAGES

The advantages which can be claimed conservatively for scopolamin and morphin in anesthesia may be briefly summarized as follows:

1. It permits economy of chloroform or ether, with the attendant advantages; it reinforces spinal anesthesia.
2. There is lessened postoperative nausea and emesis, with the decreased danger of pneumonia and other side-actions.
3. The stage of excitement is lessened or abolished, and the fear of anesthesia is eliminated largely.
4. The course of anesthesia is rendered smoother and more uniform.
5. There is decreased salivation after ether and a diminution of pneumonia.
6. There is sleep of some hours following operation, with the avoidance of pain which commonly follows operations with chloroform or ether.
7. In addition to those mentioned, there are minor advantages which will be mentioned later.

1. *Economy of Chloroform and Ether.*—It is claimed by a very large majority of observers that scopolamin and morphin effect an economy of chloroform and ether. While this is a matter of prime importance, it is so purely a surgical question that it cannot be considered exhaustively here, but the following citations illustrate the point: Zadro (1909) states that 60 grams (2 ounces) of Billroth's mixture and 100 grams of ether suffice for an operation of an hour, but with 0.5 milligram (1/130 grain) of scopolamin and 1 centigram (1/6 grain) of morphin, 25 grams (5/6 ounce) of Billroth's mixture and 80 grams (2⅔ ounces) of ether, or 120 grams (4 ounces) of ether, suffice. Among others who report economy of ether is Flatau, who states that this economy is not attended with lessened emesis. Schoemaker (1909) reports that he found no marked economy of chloroform or ether, but he admits that these act less injuriously after scopolamin and morphin. If the latter statement is correct, we must conclude that less than usual of chloroform and ether were actually used.

2. *Lessened Nausea and Emesis.*—Blos states that patients take food almost immediately after an operation following the use of scopolamin and morphin, and that recovery is rapid in consequence. Several observers state that patients look fresher and better than after chloroform or ether alone. Hartog (93 cases) states that nearly all patients show an extraordinary good condition after operation following the use of scopolamin and morphin, and Klein remarks that such patients recover quicker and better than after long chloroform narcosis alone. A great majority of observers report that there is less emesis immediately following operations, with scopolamin and morphin, than with chloroform or ether alone.

The disadvantages and dangers of this postoperative emesis do not require detailed discussion here, but, in addition to the fatal pneumonia, which it causes so often, there are many minor disadvantages resulting from it. Flatau says that postoperative emesis is often the cause of hernia as well as hemorrhage. Blos calls attention to the increased viscosity of the blood commonly resulting from emesis and the inability to take water. Korff claims that the ability to take food soon after an operation greatly lessens the danger of hemorrhage, and that many stitches are pulled out during emesis. The ability to take food soon after an opera-

tion certainly hastens repair and increases the resistance to infection.

The testimony is conflicting in regard to the actual frequency of emesis after operations following scopolamin and chloroform or ether, but the real benefits of scopolamin and morphin in this respect cannot be shown by tables giving merely the frequency of emesis; the interval before its occurrence is of even greater importance. This is illustrated strikingly in Ries' report. Ries states that emesis occurred in about 60 per cent. of his cases in which chloroform was used after scopolamin and morphin, and in about 36 per cent. of those where ether followed, but only once in the series of 185 major operations did emesis occur within twenty-four hours, and he did not have a single case of pneumonia in the entire series.

As to the actual frequency of emesis after scopolamin and morphin and chloroform or ether, there is little doubt that it is materially decreased in the first twenty-four hours following operation, and, indeed, in the whole period concerned. Schoemaker (1909) states that there was emesis in about 10 per cent. of his 3,000 cases in which scopolamin and morphin were used, which was a marked reduction from that seen when he used chloroform or ether alone.

Flatau claims that emesis is not lessened by small doses of scopolamin and morphin, but the effective doses used by Grimm and by Schoemaker were quite small, 0.5 milligrams of scopolamin, and 1 and 1.5 centigrams of morphin, respectively, and the results obtained by Ries, previously mentioned, were obtained from the use of 0.65 milligram of scopolamin and 1.0 centigram of morphin (1/100 grain scopolamin, 1/6 grain morphin).

The lessened tendency to postoperative pneumonia after scopolamin and morphin with chlorform and ether, owing to lessened emesis and lessened salivary secretion after ether, is shown by the following figures: Boesch states that there were only 0.7 per cent. of cases of postoperative pneumonia following 2,000 operations with scopolamin and morphin and inhalation anesthesia since 1905, and even less than that of late. Zadro gives 0.9 per cent. (it should be 1 per cent.) in 770 cases against 4.8 per cent. with chloroform alone in 1908. He cites the results in Kümmel's clinic, where there were 0.7 per cent. of postoperative pneumonia when scopolamin and morphin were used, against 2.5 per cent. without them. In other clinics as high as 5 per cent. of postoperative pneumonia is reported where scopolamin and morphin are not used.

Grimm reports that there were 43 cases of pneumonia with 18 deaths following 1,754 laparotomies between 1895 and 1905 when scopolamin and morphin were not used, but there were only 6 cases of pneumonia and none fatal in 839 laparotomies where scopolamin and morphin were used before inhalation anesthesia.

If the averages just given are sustained by the observations of other surgeons, there can be little doubt of the beneficial action of scopolamin and morphin in preventing postoperative pneumonia, and in that event we must consider them indispensable, despite a higher immediate mortality than with ether or chloroform alone. The foregoing does not take account of the possibility of fatty degeneration of different organs resulting from scopolamin and morphin, but that probably does not occur with small doses.

3. *Lessened Excitement.*—It is so nearly universally admitted that there is lessened excitement in the early stage of anesthesia following the use of scopolamin and morphin, that the subject may be dismissed with a few words. Sieber states that morphin alone is preferable for the purpose, and Zadro claims that there is no influence on the stage of excitement in the case of alcoholic patients, but this is denied by Grimm. Hartog reports the case of an hysterical patient in whom tonic and clonic convulsions followed the injection of scopolamin and morphin, but these subsided when anesthesia was induced by inhalation.

4. *Anesthesia Smoother.*—Zeller states that no other anesthetic produces such smooth narcosis in severe operations as scopolamin and morphin. Several observers refer to his effect of scopolamin and morphin, and those who work with dogs in laboratory experiments have noted this effect of morphin.

5. *Decreased Saliva.*—The profuse flow of saliva during the inhalation of ether is said to be a prolific source of pneumonia following its aspiration, and of emesis, from the effects of the ether in the saliva swallowed. Scopolamin checks this secretion very effectively, and it may indeed lead to extreme dryness of the mouth and throat difficulty in swallowing, intense thirst and diminished expectoration, which may prove a serious disadvantage.

6. *Long Sleep.*—Many observers mention the prolonged sleep following operations after the use of scopolamin and morphin with chloroform or ether, and state that the patient is thereby spared much suffering, which is otherwise experienced so often. Zeller states that patients often sleep from four to six hours, and Terrier and Desjardins say they may sleep as long as eight or ten hours. While this sleep is usually an advantage, there are conditions under which it may prove distinctly detrimental. Routier denies that postoperative pain is materially lessened by the use of scopolamin and morphin.

7. *Miscellaneous Advantages.*—Various individual observers mention minor advantages in addition to those already discussed, including the following: There is no mask to interfere with asepsis of the face when scopolamin and morphin are used alone for anesthesia (Blos); scopolamin and morphin anesthesia is suitable in cases in which chlorform and ether are unavailable (Dirk and others); but this is hardly borne out by what has been said of the physiologic actions of the two alkaloids and by the experience of Ely, Sexton and others. Penkert says that scopolamin and morphin "twilight sleep" and spinal anesthesia constitute the most humane method of narcosis at our disposal. Grimm is one of the few who advocates the use of scopolamin and morphin for use in general practice. Roith states that the method is more reliable than that with other anesthetics, and not more troublesome.

DISADVANTAGES

The disadvantages of scopolamin and morphin preliminary to chloroform or ether anesthesia may be summarized as follows:

1. They frequently fail to produce the desired effect.
2. They often act injuriously on the respiration and circulation.
3. There are numerous contraindications, of which many are not sufficiently defined.
4. The action is variable with different individuals.
5. They are not suited for general practice.
6. They have caused a number of fatalities.
7. There are several minor disadvantages that will be discussed later.

1. *Failure to Produce Effect.*—Nearly all observers agree that in a fairly large percentage of cases the objects sought are not attained by the use of scopolamin and morphin, whether these objects are limited to the avoidance of the stage of excitement with small doses, such as Kochmann and most observers advise, or the effort is made to economize chloroform or ether greatly, as Korff (1908) still attempts by somewhat larger doses. Twenty-five per cent of failures is probably a fair estimate, but this does not apply to the prevention of postoperative pneumonia, in which, as stated, the results appear to be far better.

2. *Effects on Respiration and Circulation.*—It is well known that morphin depresses the respiration in all doses that produce any perceptible systemic action. The effects of scopolamin are, unfortunately, not so well known, and the effects of the two when combined are even less understood, though there is considerable evidence that their synergistic action in narcosis is sometimes extraordinary, in that their combined action is then much greater than the sum of their separate actions would be.

This is not a wholly anomalous condition, though it is one which is frequently overlooked. Gottlieb and Eeckhout's results with opium furnish us with an example of this peculiar synergistic action. They found that tincture of opium acts with more energy than can be accounted for by the potency of the separate alkaloids which it contains. Honigmann states that the action of a mixture of chloroform and ether is sometimes far greater than the sum of the action of the two acting separately. Wholly analogous to this is the action of atropin in antagonizing pilocarpin. Magnus states that 250 times as much atropin is required to produce stimulation when it acts alone as that required to overcome the depression from pilocarpin.

This remarkable synergy of actions has been observed on precisely those structures. i. e., those of the nervous system, in which we would expect the greater variation in reaction because of their highly specialized character, and it is with narcotics—even the identical narcotic that we have under consideration—that these peculiarities have been observed.

We are familiar with wide variations of actions, or idiosyncrasies, toward morphin, and it is possible that we are to become equally familiar with idosyncrasies toward scopolamin. Scopolamin in large doses paralyzes the respiration, and it is apparent from the testimony of many clinical observers in cases in which death followed the use of the mixture, that the synergistic action of scopolamin and morphin is occasionally exerted on the respiratory center in a very remarkable way. Unfortunately, we do not know the precise conditions which call forth this unusual synergistic action, but we do know that whatever tends to depress the respiratory center favors this unfortunate reaction. The respiratory depression may be direct, or it may be caused indirectly through anemia, general weakness or extremes of life.

The evidence is irrefutable that scopolamin and morphin may cause death from paralysis of respiration—a paralysis against which artificial respiration and all means of stimulation are ineffective.

Sieber (1908) stated that Hartog alone had mentioned the lasting increased pulse rate after scopolamin and morphin, but the phenomenon is mentioned frequently thereafter, and its occurrence is in accordance with de Stella's statement that toxic doses of scopolamin increase the pulse rate, and furthermore, that toxic symptoms appear and disappear rapidly. Any considerable increase in the pulse rate after scopolamin and morphin must be considered an untoward symptom unless it can be accounted for satisfactorily.

Sieber mentions a case in which the pulse rate was 80 previous to the injection of a small dose of scopolamin and morphin, but in one hour the rate was 160. The heart, lungs and kidneys were apparently sound. This case of Sieber's must be considered as very unusual, and I am not aware of any case in which a dose not exceeding 0.5 milligram (1/130 grain) of scopolamin and 1 centigram (1/6 grain) of morphin has caused the death of a patient in fairly good condition and with sound organs, but the death reported by Ely very nearly fulfills these conditions. His patient was reported to have been in good general condition, but succumbed two hours after the administration of 1/100 grain scopolamin and 1/8 grain morphin (0.65 mg. scopolamin; 0.8 cg. morphin). There is no better authenticated cause of death from a narcotic than this one.

3 *Contraindications.*—Foremost, then, among the contraindications for the use of scopolamin and morphin are to be placed all conditions whereby the respiratory center is depressed, or is likely to be injured directly through prolonged anesthesia, or indirectly through the circulation by shock, hemorrhage or other cause. They are certainly contraindicated in all severe cardiac diseases and other conditions which interfere with the circulation. They are available for operations for simple goiter, but nearly all authorities agree that they are contraindicated in the presence of Graves' disease, which is to be inferred from what has been said. They are contraindicated in operations about the throat and mouth, since the prolonged sleep and interference with expectoration favor the aspiration of the blood. One death has been attributed partly to this, pneumonia, due to aspiration of blood, being the immediate cause of death.

The question of special indications and of contraindications for scopolamin and morphin has probably caused more disagreement than any other in connection with the subject of their use. Sick thinks there are no contraindications, while Sieber declares that there are no indications for their use. Sieber closes his article with the following exclamation: *"Also Weg bei der Narkose mit diesem unberechenbaren, meist nutzlosen, gefährlichen Gifte"* ("Away with narcosis by this uncertain, mostly useless dangerous poison").

Much of the controversy could have been avoided had greater attention been paid in the beginning to the physiologic actions of scopolamin and of morphin, and of the mixture acting as a unit.

4. *Variable Action.*—That the action of scopolamin and morphin is variable with different individuals follows naturally from what has been said, and it is impossible, of course, to foresee all of the conditions in man which will cause a greater or less deviation from the usual effects, and when a natural idiosyncrasy is intensified by disease or untoward conditions even small doses of scopolamin and morphin may prove fatal, as in the cases reported by Toth, Ely, Sexton and others.

These individual differences in reaction varying from no perceptible action in some cases to a fatal intoxication in others with precisely similar doses, constitute one of the greatest disadvantages of the use of scopolamin and morphin. Usually, however, the same patient reacts similarly at different times, but Hotz maintains that the same patient reacts differently at different times, and the possibility of this is precisely what is to

be expected in view of the disturbances of the respiration and circulation which may arise, and on which the untoward results depend.

5. *General Practice.*—The method is not usually considered as suited for general practice because of the constant attention required until the action has finally worn off, as the untoward symptoms may not arise until some time after the operation. It must be considered as unsafe to leave a patient without surgical care so long as sleep continues. There is probably little danger from small doses of scopolamin and morphin for patients whose general condition is good, and who show no serious effects from the operation, but the cautious surgeon will remain within call until the patient awakens.

6. *Fatalities.*—The ultimate fate of scopolamin and morphin in anesthesia must depend largely on their relative safety as compared with other agents, particularly chloroform and ether. While this is a surgical question for the most part, it must be considered with reference to the physiologic actions of these agents if we are to arrive at a correct estimate of the value of the method, for in fatal surgical operations there are so many factors involved that it is often impossible to determine the true cause of death. But when we see a series of deaths in which the clinical observations agree with what we know of the actions of the agents in question, the evidence is certainly very much stronger than it would be if the clinical observations did not agree with those actions.

H. C. Wood, Jr., studied the cause of death in 23 cases in which scopolamin and morphin had been used, and he concluded that at least 9 of those deaths must be attributed to the scopolamin and morphin, the death rate being about 1 to 250 narcoses by this means. Roith collected statistics of 18 deaths in 4,000 cases of scopolamin and morphin narcosis, but he does not agree that scopolamin and morphin should be blamed for these deaths. De Maurans attributed 22 deaths to these agents up to November, 1905. Viron and Morel (1906) noted 25 deaths in 2,000 cases collected from the literature.

With the methods now in vogue with the more conservative surgeons, who use only small doses of scopolamin and morphin in connection with other anesthetics, the death rate is very much lower than the figures just given would indicate, but there is no reason to suppose that better results can be obtained when scopolamin and morphin alone are relied on to induce the anesthesia.

These figures are given by way of illustration of the question of scopolamin and morphin anesthesia, and are not intended as a complete statistical study of the subject, and when statistics are considered a sharp distinction should be made between those cases in which death follows large doses of scopolamin and morphin, intended to replace chloroform or ether wholly or chiefly, and those in which only small doses of scopolamin and morphin are used for the purpose of securing freedom from excitement, lessened emesis, smoother anesthesia and freedom from some of the more annoying minor symptoms. In the light of what has been said of the pharmacology of morphin and scopolamin, it is also necessary to distinguish between the results obtained by those who use the method for all cases and those in which there is careful selection of suitable cases.

The argument has been advanced, that certain deaths following the use of scopolamin and morphin, particularly those reported by Israels, were not due to scopolamin, because there was marked fatty cardiac degeneration, but de Stella concluded that scopolamin causes widespread fatty degeneration, and Israels said he had never seen fatty degeneration from such small amounts of chloroform as had been used in those cases. Sexton's patient died within an hour and fifteen minutes of the injection of 1/6 grain of morphin (1 cg.) and 1/100 grain of scopolamin (0.65 mg.), with the usual symptoms of scopolamin intoxication, paralysis of respiration and rapid pulse. Rigidity of the muscles prevented artificial respiration in this case, but in the light of experience in other similar cases, it would, in all probability, have done no good.

7. *Minor Disadvantages.*—Among the minor disadvantages which have been mentioned by different investigators are the following: When the morphin and scopolamin are once injected they are wholly beyond control. One surgeon writes of his emotions at seeing his patient die while he and his assistants stood by helpless to counteract the effects of the drugs they had administered.

Every additional narcotic complicates the anesthesia.

Scopolamin does not cause muscular relaxation, a disadvantage, when used with spinal anesthesia particularly, and we have seen that muscular spasm interfered with artificial respiration in one fatal case at least.

The prolonged sleep may prove a disadvantage, as already mentioned. Hirsch mentions its interference with expectoration after operations about the mouth, and it is said that the prolonged sleep and the attendant respiratory depression may favor pulmonary edema.

Intense thirst, dryness of the mouth and throat and the difficulty in swallowing are sometimes complained of by patients.

Different investigators have attempted to explain many of the accidents which occurred early in the history of scopolamin and morphin anesthesia, on the ground that the drugs employed were impure or that the solutions underwent changes whereby toxic substances were formed.

Kionka maintains that apoatropin is the only impurity which could be concerned in the increased toxicity of the scopolamin, but he had never been able to detect this impurity in any of the specimens of scopolamin examined, hence he thought it must be extremely seldom that this impurity could be present. Apoatropin may be detected by Kessel's method. Potassium permanganate causes a brown precipitate when one part of apoatropin is present in 20,000 parts of the solution. Morphin and many other alkaloids give this reaction, hence it is not applicable to the mixture of scopolamin and morphin. The Swiss Pharmacopeia (1907) does not mention this substance as an impurity in scopolamin. Kobert attributed the death of a man who had scopolamin to apoatropin, which was said to be present as an impurity.

While solutions of scopolamin do undergo some unimportant physical changes as previously mentioned, it is probable that sterile solutions do not undergo any essential change in the course of a few months. Ries was unable to observe any difference between the effects of those solutions which had been freshly prepared and those which had been kept for some weeks. This agrees with the results of Kionka's experiments with freshly prepared, and old, solutions of scopolamin. Hotz states that milk sugar is said to prevent the deterioration of scopolamin solutions. The physical changes observed are said to be probably due to the alkali of the glass.

(*To be concluded in the next issue. The bibliography of this article will be found at the end of the concluding portion.*)

CORN AND PELLAGRA

A CONTRIBUTION TO OUR KNOWLEDGE OF THEIR RELATION AS PROBABLE CAUSE AND EFFECT *

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The recent conference held at Columbia, S. C., under the auspices of the State Board of Health of that commonwealth emphasizes and confirms the opinion that in some unknown way there is a connection between our well-known cereal and the disease in question. Very many, perhaps a majority of those who took part in the discussion and in the papers read as reported in THE JOURNAL[1] subscribed to the statement of Dr. Sandwith of London, that "it is not good maize or good maize flour which produces pellagra; the disease requires for its production the habitual use of damaged maize in some form."

Respecting this disease and its cause two statements can be made with great confidence in their accuracy:

1. Where corn is not eaten, pellagra does not exist.

2. The eating of good corn or corn-meal will not produce pellagra.

The latter proposition is self-evident. Otherwise the whole population of the great corn belt of the world comprised in these central Western states would be victims of this plague. On the contrary, the food-value of this staple cereal is without question and its healthfulness is attested by millions of the best-fed people of the world.

There need be no fear on the part of agriculturists and dealers in this grain that there is a menace to their occupation by the growing prevalence in this country of a disease which has been known in other corn-growing sections of the world for nearly two centuries.

The only wonder is that it did not appear at an earlier time in our history or that it remained so long unrecognized. In my judgment, however, both these facts are capable of explanation. It is recognized that no class of people is exempt from possible attack, but it is evident that the poorer people of the South and the Atlantic border states are victims in greater numbers than are the same classes in other parts of the country.

This fact is also capable of explanation and affords strong presumptive evidence that damaged corn-meal is the causative factor in the pellagrous attack.

1. Rich people may get damaged meal in places where it is kept in stock. Such use for them would be accidental and not habitual, as it is with the poor in the same locality.

2. Damaged corn-meal is sent to the South and the South Atlantic border of our country for the express purpose of finding a market. It would find no market in the North and any use of such meal would be purely accidental. No dealer would dare to offer to consumers in this or other corn states a meal which would not stand the closest inspection. Europe and the South are the markets for such stuff and thither it goes.

In the hope that some light may be thrown on this traffic, and incidentally on the infection under consideration, allow me to quote from a letter written by a friend who has been a dealer in cereal products for many years and who is fully informed on all phases of the foreign and domestic trade in grain. It will be apparent that, while there are tricks in all trades, there are also honest men in the grain business whose consciences have not been seared by the virus of ill-gotten gain so that they utterly deny personal responsibility in a brother's distress. The letter follows:

As you know I have been connected with the grain business, in some branch or other, since the sixties. I have handled corn at all seasons of the year, and in varying quantities, but have never had trouble with corn shipments until within about the last half dozen years.

There are many farmers who make no effort to cure the crop sufficiently so that it may bear transportation. They force it on the market as early as possible, as the more moisture it contains the heavier it will weigh. What is the result?

Before it can reach its destination, cool and sweet, as the shipping contracts read, it has become heated. If it becomes too bad to use the consignee will refuse it, in which case it is rushed to the nearest terminal and put through a dryer. There are times when these dryers must work day and night, for seven days in the week, to keep the constantly arriving corn from total destruction. As fast as it is dried and cooled it is disposed of. Where does it go? I do not know to a certainty. I formerly thought it went to the distilleries, and a portion of it may go there, but I fear much of it is sold to the mills at a discount of from 10 to 50 per cent. Some of it is exported after mixing with good corn. The best is selected and made into meal, and, costing so much less, can be sold at a very attractive price to those whose means are limited.

There are very many people who look more at cost than quality and eventually pay the penalty. The exporters also reap advantage because the poorer Europeans, especially the Italians, know no better, and they, too, pay the penalty.

I know positively that corn has reached European ports badly out of condition. I remember that, some four years ago, nearly every shipment, from November until March, arrived at destination out of condition. The following year it was not so bad, yet there was enough. Every year during the germinating period—the months of April and May—there is plenty of it unless great care is taken. From this it would appear that our pure food inspectors should investigate and find out where the poisonous stuff goes, and stop the killing of people for money. It will no doubt be very hard on some dealer occasionally to have his entire cargo condemned and destroyed, but the practice of shelling and shipping corn before it is properly cured should be broken up root and branch.

The Atlantic and Gulf coasts are the greatest sufferers from pellagra, and they get their supply of meal from the North, as the Southern states raise but little corn. Philadelphia, Baltimore, Buffalo, Cleveland and Columbus, Ohio, have very extensive driers and large mills and the South is an excellent customer. The temptation of unusual profits is great; no doubt advantage is taken of the opportunity, and the result is death and destruction to the poor and the ignorant who are unable to help themselves.

I have learned that the distillers do not use much, if any, spoiled corn. It will not make good spirits. It does not make good fertilizer. At least it would not be profitable to use it for that purpose. The real profit comes through mixture with good grain. For example, a cargo of 100,000 bushels, costing $70,000, mixed with 10,000 bushels at a discount of 20 cents, would pay a profit of $2,000 over and above the legitimate margin. The millers near the terminals are not blind to this opportunity, and will, I fear, take it until restrained by the strong arm of the law. This inferior corn in large quantities is begging for an outlet, and the great territory along the Atlantic coast is hungry for provisions and will take anything so it is cheap. Inferior meal fills the bill.

That this inference is fair is strengthened by the fact that the last half of this decade, the time in which we have had most trouble with spoiled corn, is the very period in which pellagra has made such strides as to draw the attention of the whole world.[2]

* Read at the meeting of the Northwestern Ohio District Medical Association, at Bellefontaine, O., Dec. 8-9, 1909.

1. Nov. 13, 1909, lili, 1659

2. This letter was written by Mr. Thomas B. Marshall, ex-president of the Ohio Grain Dealers' Association, a man of the highest character, whose motives in making these statements can be attributed only to a high sense of Christian responsibility, and a sincere desire to aid the medical profession in its most altruistic work of tracing a possible connection between one phase of the grain trade and the disease in question.

Whether the inference drawn in this letter be correct or not, the facts should be easily accessible to the commission appointed by the Surgeon-General of the Public Health and Marine-Hospital Service, and if these facts sustain the charge, steps should be taken to stop this traffic in spoiled corn.

It is a mistake to suppose that any exposure of this kind will hurt legitimate trade, for it is expressly stated that the eating of good corn-meal will not produce pellagra.

It is said that there are already about 5,000 victims of the disease, and many thousands more will be added to the list if the traffic continues unabated. What a commentary on those blind leaders of the blind who oppose now, and ever will oppose, the formation of a national health bureau and almost every form of national health legislation!

It is worthy of remark that the policy of purchasing supplies for public institutions by the method of competitive bidding is one fraught with great danger. It supplies a powerful motive for fraud and evasion of the Food and Drugs Act.

No system will probably be devised that will circumvent the schemes of the designing, but to purchase in the open market as need requires is a safer policy than that which really offers a premium for the delivery of inferior (because cheaper) foodstuffs or other material required by the wards of the state in her penal, reformatory, educational or other institutions.

It is possible that to this policy may be traced the comparatively large number of pellagrins found in asylums and schools. At a Baptist orphanage at Nashville, Tenn., there were 17 cases, and the physician in charge says that there was every evidence that the disease was contracted in the institution. It is true that another asylum not far away used the same grade of meal made by the same miller and no cases developed. The same was said and proved during the preserved meat controversy, the outcome of the Spanish-American War. Thousands of soldiers used the stuff and survived the ordeal, but there can be no doubt that other thousands were victims to the vicious policy of the government of giving out contracts for army supplies to the lowest bidder.

With equal truthfulness and propriety it can be said that eternal vigilance is the price of liberty and of good food. The public looks to us for protection, and it is hoped that the hint herein contained may lead to a solution of a perplexing problem.

923 North Main Street.

PRIMARY SARCOMA OF THE SPLEEN

CAMILLUS BUSH, M.D.
SAN FRANCISCO

Why neoplasms of the spleen are so rare has never been satisfactorily explained, and doubtless never will be until we know the causes of tumors in general. We might speculate on the protected position of the organ, its freedom from irritation of any sort, such as comes to most other organs by the nature of both their position and work. The spleen escapes the unpleasant results of all but the most wide-spread calamities of the body, such as the septicemias and toxemias. The damage it sustains is commonly that carried to it by the blood-current.

Speculation even is not so easy when it comes to accounting for the rarity of its metastatic invasion in cases of the most extensive dissemination of tumor tissue. Its lymphatic supply is abundant enough, as is its blood-supply, to expose it to lodgment of circulating cells. If, however, we recognize the Hadley exposition of the spread of cancer as along fascial planes in its peripheral advance, we may again think of the sequestered position of the spleen and its lack of broad ligamentous attachment, or continuity of its coverings with surrounding fascias.

However these things be, primary neoplasms of the spleen are of great rarity. The consideration of such tumors narrows practically to a consideration of sarcoma, as the only other tumor reported has been fibroma, and that only once or twice as a growth from the capsule. Most reporters agree that there never has been reported a convincing case of carcinoma of the spleen.

In 1904 Jepson and Albert[1] described a case of primary sarcoma of the spleen, the patient being treated by splenectomy, and well ten months later. In that article they reviewed the literature and collected the cases of primary sarcoma of the spleen. Since their contribution one case has come to my knowledge, that of a patient of Dr. Willy Meyer, in 1906, treated by splenectomy and dead in a few weeks from recurrence.

In all, there have been 24 undoubted cases of primary sarcoma of the spleen. Eleven of these were discovered at autopsy. Ten other cases possibly coming in this category are autopsy cases, and are so ambiguously described as to be necessarily discarded. This leaves 13 cases treated by splenectomy. Four patients died as an immediate result of the operation. Of the 9 survivors, 4 died of recurrence and 1 was lost sight of. Two remained well after several years, being cured. The last 2 were living at the time of the Jepson and Albert report, but have not been reported on since. It may be, then, that 4 of the 13 were cured.

Sarcoma may arise from the spleen in three ways: from the capsule and trabeculæ, giving rise to fibrosarcoma; from the lymphoid structure, causing lymphosarcoma; and from the endothelial cells along the trabeculæ, giving rise to large round-celled sarcoma. No instances of angiosarcoma have been seen.

A study of the reported cases does not suggest any difference in malignancy of the various forms as the cases that recurred included all three varieties. Lymphosarcoma, having a number equaling the other two forms combined, was naturally responsible for most of the cases that recurred. The rapidity of recurrence does not throw any light on the comparative malignancy of the three varieties. As to the diagnosis of primary sarcoma of the spleen, little is to be said. It must be made by exclusion. I think it should usually be made with some probability. The pain will bring the patient, and enlargement of the spleen will be found. Then comes the routine exclusion of the other forms of splenic enlargement—a matter of no great difficulty, as a rule. Splenectomy, of course, is the treatment, and the outlook is poor enough unless the growth be very young.

To the short list of cases already reported I take this opportunity to make an addition.

Patient.—On March 25, 1908, I saw in consultation with Dr. Herbert Moffitt, at St. Luke's Hospital, John B., aged 48, a cattleman from Southern California. He had entered the hospital complaining of pain in the left side.

History.—The family history was unimportant. None of the patient's people had had tuberculosis or cancer. He had living, healthy brothers and sisters. In his past history were

1. Jepson, W., and Albert, F.: Primary Sarcoma of the Spleen and Its Treatment by Splenectomy, Ann. Surg., July, 1904.

mumps, measles, and malaria before his ninth year. Since that time he had been perfectly healthy. For many years he had had a slight digestive disturbance, characterized by flatulency after intemperate eating. He denied syphilis. On an average he had taken one drink of whisky a day for some years. Three years before he fell heavily on his left back, striking in the splenic region, across a beam. After this, for six weeks he suffered pain, which gradually disappeared. This accident did not prevent his working. Turning on the left side relieved the pain to a great extent. He said that the pain was similar to that which he had had since the onset of the present illness.

Present Illness.—This began eight weeks before admission, with pain in the left side, first noticed after a long railroad journey. This pain gradually increased in intensity and was unrelieved by changes in posture. The patient, however, continued riding horseback up to the time he started for San Francisco. Associated with the pain there had been a little flatulent indigestion and a tendency to constipation. The patient had lost in weight about twenty pounds. There had been no urinary disturbance, and the urine, examined from time to time, had been reported normal. No hemorrhoids.

Examination.—This showed a stout, healthy-looking man of good color, not confined to bed. There was a hard, slightly irregular tumor in the left hypochondrium, emerging from under the ribs toward the navel on deep breathing. It was superficial but not tender, filled the upper half of the flank, but had its lower border higher than the level of the umbilicus. The area of splenic dulness was greatly increased. When inflated, the stomach lay to its right. The tympany of the colon reached the edge of the tumor below, but did not pass in front of it. The mass was evidently the spleen. Physical examination was otherwise negative. No glands were to be felt. The liver did not exceed its normal size. The rectal examination was negative. The urine was normal. There were no evidence of syphilis or tuberculosis. The leucocyte count was 8,900; the polynuclear leucocytes 75 per cent. There were no malarial parasites and no anemia. The blood-picture was the ordinary one. The temperature ran a normal course. There was nothing in the stools to suggest loss of pancreatic function, neither was there blood or pus. The examination for occult blood was negative. The stomach content showed the presence of free hydrochloric acid, many staphylococci, and long rod-shaped bacilli, a few large squamous cells, and some cuboidal cells.

Course of Disease.—It was judged that the condition was probably a primary splenic tumor, and exploration was decided on for the following Monday, the day of examination being Wednesday. On Friday afternoon he took a rather long ride in the street-cars, and returned in the evening with more than his usual pain, and went to bed in his room. During the night the nurse heard a fall in his room, and when she ran in, found him lying on the floor in a faint. He quickly revived, however, and was put back to bed. The pulse was noted as quick at this time. During the remainder of the night he was restless and ill, but did not vomit. The house officer in charge was not called. The patient was not seen until 9 a. m., when Dr. Moffitt and I visited his room. It was immediately apparent that he was in collapse. He was restless, thirsty, with pinched face, the pulse 140 to 150 and thready; respiration 40. The intense cyanosis was striking. The abdomen was held quiet, the respiration being costal; there was some distention. The left side was held rigid, was tender and presented movable dulness. It was evident that there had been some grave accident, probably a rupture of the spleen, as the picture was one of hemorrhage rather than perforation of a viscus. The patient was immediately given salt solution by rectum and under the skin. An hour afterward, having rallied a little, he was taken to the operating-room. Leucocyte count was 27,800; polynuclear leucocytes, 90 per cent.

Operations.—The abdomen was opened by an incision to the outer border of the left rectus. Free blood ran out as soon as the peritoneum was incised. The enlarged irregular spleen presented in the wound. There were one or two whitish bosses on its surface, suggesting sarcoma. On the mesial surface of the organ was a superficial rupture into the splenic tissue from which blood was rapidly oozing. At the splenic flexure was an extravasation of blood between the folds of the colonic mesentery, but apparently no thrombosis. The blood was hastily sponged out and a tampon of iodoformized gauze placed to the rent in the spleen. The wound was closed about the gauze with interrupted sutures through peritoneum and muscles. The skin was closed separately. No lesion other than the splenic was discovered in the abdomen, though the examination was hasty. During the following week the patient gradually recovered strength and the hemoglobin rose to 60 per cent. The gauze to the spleen was not touched. There was considerable ooze. Six days after the first operation the splenectomy was performed under ether anesthesia. The previous wound was reopened; it was healing *per primam intentionem*. Light adhesions were separated and the gauze tampon removed, followed by considerable hemorrhage from spleen. The incision was enlarged into a T-shaped one by cutting directly across the muscles, toward the flank. Intestines, stomach, and omentum were packed off, the spleen delivered after freeing a few adhesions, the splenic ligament clamped from outside the spleen, then the pedicle clamped from inside, and the organ removed. The vessels were not enlarged. The stump was transfixed with silk ligatures and tied. There was some oozing from the tail of the pancreas, which had been adherent to the spleen. A cigarette drain was placed to this point. The diaphragm was left lax and wrinkled. The wound was closed in layers around the small drain.

Postoperative History.—The patient left the table in good condition. After about four hours he suddenly collapsed, with cyanosis, sweating, rapid respiration, scarcely countable pulse. There was tympany high into the left axilla. The heart was displaced toward the right side, and as the abdomen was negative to examination, the condition was judged to be one of acute dilatation of the colon or stomach due to the removal of the large spleen and the readjustment of the neighboring viscera. The patient slowly responded to infusion and caffein and strychnin with morphin. During the ensuing days the improvement was steady. The hemoglobin rose to 50 per cent., the pulse and temperature remained normal but he had some pain in the region of the wound, which was thought to be due to the drain. Any attempt to remove the drain was accompanied by extreme sickening pain, referred to the pancreatic region. Almost daily attempts were made to remove it, but without success, until finally, after three weeks, under nitrous oxid anesthesia, the gauze was forcibly dragged out. Meanwhile the skin stitches had been removed and the wound had healed *per primam intentionem*, except for the sinus of the drain. The leucocytes, which on the day following operation were 28,000 (polymorphonuclears 90 per cent.), steadily declined to 10,000 three weeks later with 80 per cent. polymorphonuclears. A few eosinophiles continued to be present. For a time the urine contained a trace of diacetic acid. There were no other peculiarities in the blood-picture, except that of stubborn depression of the hemoglobin, 60 per cent. About five weeks after the operation the pain, which had persisted to a moderate extent, became very intense. At the same time the liver rapidly enlarged, coming down almost to a level with the navel. The pain was mostly referred to the liver. The patient stopped gaining strength and had to be given opiates. Recurrence seemed sure in liver. The patient was put on *x*-ray exposures and Coley's artificial serum, with some benefit. The liver gradually decreased, and the patient again gained strength till he returned to his home, in the southern part of the state. Letters from Dr. Petit of Visalia, the patient's home physician, kept me apprised of his further condition. He never fully regained his strength, but after three or four months began to lose steadily and have increased pain. The liver enlargement had disappeared, but a mass had formed in the left hypochondrium. This increased in size till his death, six months after operation. Before he died the stomach became intolerant, and the vomitus contained blood. Old blood appeared in the stools.

PATHOLOGIC REPORT

The removed spleen weighed 2 pounds and 14 ounces. It was somewhat irregular, with two low bosses on its anterior border. These looked whitish as compared with the remainder

of the purple splenic surface. When sectioned the spleen contained a number of separate nodules of new growths, the largest about 7 cm. in diameter, the smallest 3 cm. across. The nodules were fairly well circumscribed, the smaller being grayish and translucent, the largest whitish and necrotic in the centers. There was hemorrhage into the largest nodule. In no place had the growth invaded the capsule. The rupture was in healthy tissue, was superficial, and apparently caused

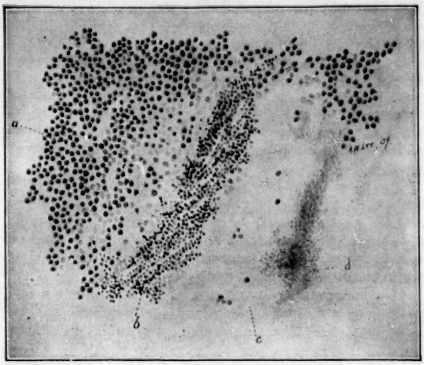

Fig. 1.—Primary sarcoma of spleen; A, sarcomatous cells; B, remnant of splenic tissue; C, area of degeneration; D, diffuse hemorrhage. (Zeiss ocular 12, B. and L., objective $\frac{2}{3}$.)

by increased intrasplenic tension, possibly from the hemorrhage into the largest tumor mass.

The report of Dr. Ophüls, the pathologist, was "large-celled sarcoma." In view of the absolutely negative examinations of the abdomen at the two operations, it was judged that the condition was certainly one of primary sarcoma of the spleen. Death was due to recurrence in the region of the wound. Fortunately, I was permitted to perform an autopsy, which I think confirmed the diagnosis. The report of the autopsy follows:

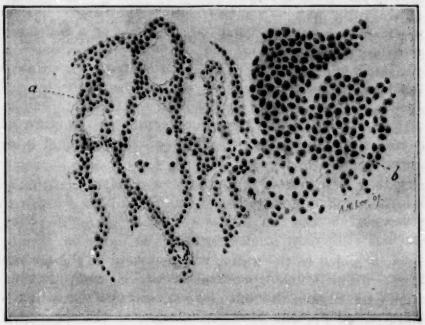

Fig. 2.—Metastases in lung; A, lung tissue; B, sarcomatous cells. (Zeiss ocular 18, B. and L., objective $\frac{2}{3}$.)

"Sept. 7, 1909: Without giving the details of the examination, the findings were as follows:

"Omentum adherent to old scar in epigastrium. Together the pleural cavities contain about a liter of slightly turbid brownish fluid. The lungs contain, evenly scattered through them, a small number of whitish nodules the size of small peas. The liver, which, it will be remembered, was greatly enlarged at one time, is hypertrophied, but presents a normal appearance on surface and section (measures 22 by 35 by 10 cm.) and reaches only to costal margin. No evidence of metastases. The splenic flexure, descending colon and sigmoid are imbedded in a mass of dense adhesions extending along the whole of the left flank.

"There is a cystic mass the size of a large grape-fruit occupying the splenic area. To it are adherent, above the diaphragm, on the right, the cardia and posterior wall of the stomach and the tail of the pancreas. The upper pole of the kidney and suprarenal are embedded in the mass.

"When the diaphragm is stripped off it ruptures easily, suggesting that at a previous time there might have been a perforation into the pleural cavity. The stomach is reddened and injected with many ecchymotic spots, each measuring about 1 mm. The tumor mass itself measures, roughly, 13 by 15 to 10 cm. The surface is covered with uneven, irregular-sized nodules, all of which, except the smaller ones, show fluctuation. The posterior surface of mass is smooth except for small, irregular, hard, opaque nodules, similar in all respects to those found in the lungs. There are numerous enlarged mesenteric glands averaging the size of millet seed. On the surface of the bowel, especially of the cecum, seemingly in the peritoneal covering, are small opaque plaques the size of a pin-head.

"On sectioning the tumor mass the cystic areas are found to be filled with grumous, bloody, broken-down tumor material. The left kidney is not invaded by the growth, but the suprarenal body is apparently completely replaced by the tumor which has broken into its capsule on the mesial surface.

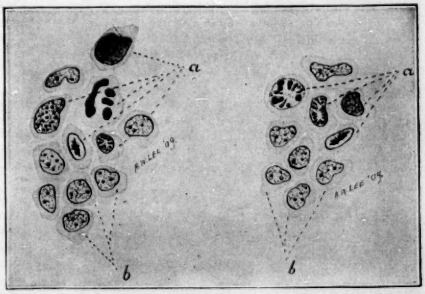

Fig. 3.—Sarcomatous cells; on the left, from the lung; on the right, from the spleen; A, mitotic; B, cells in stage of rest. (Leitz ocular 4, objective 1/12.)

"The tail of the pancreas is partly replaced by the growth which has also encroached on the wall of the stomach.

"The microscopic sections made from the various tissues show that there were recurrences in the lungs and that the large recurrence involving stomach, pancreas, and suprarenal, possessed the same cells and structure as did the original splenic tumor. The liver sections showed a normal organ."

In review then: we have a strong man developing a sarcoma of the spleen, some three years after a suggestive injury. The growth was rapid and accompanied by pain, and led to a rupture of the spleen. The removal of the spleen was followed by anemia of more than moderate grade, though the presence of a malignant tumor masks the value of this observation; by a transient leucocytosis, but by no lymphocytosis such as was described by Jerome Meyers;[2] by hypertrophy of the liver reaching its maximum five weeks after operation and gradually subsiding to time of death, and finally by recurrence of the growth and death in six months. Autopsy showed that metastasis had occurred in three ways: (1) through the blood-stream to both lungs as the nodules were scattered uniformly; (2) through the lymphatics to neighboring glands and tissues; (3) probably by direct implantation from cells in the free cavity falling on the peritoneum of the bowel.

2. Meyers, Jerome: A Study of the Blood after Splenectomy Following Trauma, THE JOURNAL A. M. A., April 17, 1909, lii, 1231.

A point that I wish to mention again is the occurrence of intense cyanosis after the rupture of the spleen. It is an occurrence that we see in lesions of the upper abdominal organs, such as perforation of a gastric ulcer (especially of lesser curvature) and acute pancreatic disease (as mentioned by Halsted).

The significance of the cyanosis has never been explained.

Appended is the report of the microscopist.

REPORT OF MICROSCOPIC EXAMINATION BY DR. LEE

"The following study is based on observations of a neoplasm, primarily located in the spleen and followed by metastasis. The new growth was undoubtedly a sarcoma. While a number of organs were invaded by the neoplasmic cells, the spleen and lung foci can be taken as types of their morphologic and tinctorial characteristics.

"The splenic tissue is, in the main, displaced by cells quite different from those seen in the normal organ. Commonly, these cells are at the very least three times the diameter of an erythrocyte, although it is no unusual finding to see them running from seven to nine times the breadth of a red blood-corpuscle, especially if in the stage of division (Fig. 1a). The cells in the stage of rest have large oval or round nuclei, nearly centrally placed. Their linen filaments are wide-meshed, and, naturally, take the hematoxylin but faintly. At the nodal points, however, well-marked chromatin bodies appear. The nucleolus is generally found near the periphery of the nucleus (See Figs. 3 and 4, b, b). Their protoplasm is rather scanty, faintly reactive to eosin, and of polygonal outline. Comparatively speaking, the sarcomatous cells in the resting stage are scarce. It would not be far from truth to say that for every three of them at least one undergoing mitosis exists. Most of these mitotic figures represent the various epochs in karyokinesis, although direct division appears to occur in rare instances. Some of the karyokinetic steps are illustrated in Figures 3 and 4, a, a.

"Comparing the individual neoplasmic cells in the spleen and the lung, the same type prevails, in respect to both size and minute anatomy. Perhaps division-forms are more plentiful in the pneumonic metastatic areas than in the parent tumor in the spleen, although this was by no means irrefutably determined.

"In the spleen large areas of degeneration are met, appearing here in the midst of the new growth, and there in the splenic pulp. Nevertheless, as a rule, both the spleen and the neoplasm contribute about equally to the degenerative fields (Fig. 1, c). In the specimens examined that were taken from the lung, degeneration is certainly not as common as in similar quantitative areas from the spleen.

"In the spleen large and small diffuse hemorrhages form prominent features. In the lungs they are not so frequent, or so extensive. New-formed blood-vessels are extremely rare. The diffuse hemorrhage in the spleen is shown in Figure 1, d.

"The suprarenal gland likewise shows a metastatic focus, but its component cells do not differ from those found in the spleen and lung."

126 Stockton Street.

LARYNGEAL DIPHTHERIA EXPERIENCES *

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ST. LOUIS

Since the discovery of antitoxin, perhaps the most thought and judgment in diphtheria treatment is required in handling the laryngeal type, which gives a much higher death rate than diphtheria infection in the upper air-passages. Laryngeal diphtheria occurs most frequently in children under 10 years of age and may develop at any time of the year; more cases, however, are seen during the winter and spring seasons.

The immediate complications in diphtheria of the upper air-passages are usually of minor consequence in comparison with those of the laryngeal type. Here serious complications frequently occur early and may give the first indication for calling medical assistance. The physician usually finds conditions which demand his best judgment and immediate action. Symptoms of obstruction of varied intensity frequently occur early, and severe dyspnea may be preceded by few prodromal symptoms. Dyspnea occurs in direct ratio to the aperture of the glottis, and is due to swelling and thickening of the cords or loose membrane. The peculiar, harsh, prolonged respiratory sounds, coming from the larynx, with a negative history of aspiration of foreign substances, lead one to suspect laryngeal diphtheria. In most cases it is impossible to see any portion of the membrane without a special laryngoscopic examination. Distress is severe, according to the degree of obstruction, and antitoxin is only a valuable adjunct in the treatment.

The methods to be employed in attempting to relieve dyspnea depend largely on the degree of obstruction and the general condition of the patient. The point for decision is whether or not to attempt relief by medical means or to resort to surgical measures—intubation or tracheotomy.

If dyspnea is increasing slowly, exhaustion not severe, cyanosis slight, and the surroundings favorable, medical treatment may be instituted. Constant intelligent nursing is necessary, and the physician should be within easy call. In hospital practice, where the resident physician may visit the patient frequently and has the assistance of trained nurses, I have frequently seen patients in great distress, but without severe exhaustion, relieved by medical treatment. From observations made in infectious wards I feel that non-instrumental methods are worthy of more frequent trial in the above-described class of cases. When such methods are to be used, the patient should be placed in a well-ventilated room, free from drafts; on a mattress or blanket bed over which is erected a tent which is as impermeable as possible to the medicated vapors to be released underneath. It is well to have the sides of the tent fall to within four or six inches of the mattress and it should be large enough to cover the patient's entire body. The vapors may be generated in a croup kettle—a teakettle or a coffee-pot with an extension spot. A quart of boiling water is placed in the vessel, which may be heated with an alcohol, gas or gasoline burner, or an electric heater. I have used several medicaments with satisfaction; four to six drams (15.5 to 23 gm.) of compound tincture of benzoin, or four to eight drams of a turpentine mixture, formula as follows:

℞.	gm.		
Olei eucalypti			
Phenolis, āā	31	or	ʒi
Spiritus terebinthinæ	248		ʒviii

may be added to the water, which is kept at the boiling point. The kettle spout is placed in such position, under the edge of the tent and not far from the patient's head, as to prevent direct inhalation of the hot vapor. As such patients are frequently very restless, careful watching is necessary. The tent is kept moderately full of vapor, and it is well to raise the sides occasionally to allow a few breaths of fresh air. Cold applications may be made over the larynx. The gown and bedcovers should lie loosely and lightly. The inhalations may be continued for several hours and intermittently over a period of several days, depending on the strength of the patient as an index.

* Read before the St. Louis Medical Society, Oct. 16, 1909.

Vomiting frequently relieves, especially if obstructive symptoms appear late and are produced by loosened membrane. A mild emetic, or gagging with the finger, may be used.

General medical treatment consisting of antitoxin and stimulation as necessary, diuretics, cathartics, etc., should be given as in pharyngeal diphtheria, or in the laryngeal type without obstruction.

Antitoxin is absolutely indicated in all forms of diphtheritic infection and should be used as early as possible. According to the degree of toxicity and nature of the case, 3,000 to 6,000 or more units may be given as an initial dose. It has been our experience that moderate-sized doses repeated every four to six or more hours are more effective and less depressing than massive ones—15,000 to 20,000 units. When the infection is of such severity as to tempt the use of massive doses, as many or more patients recover by using moderate doses repeated as above suggested. Polyvalent antistreptococcus serum has not proven of definite value in the cases of mixed infection with severe toxemia.

When a patient suffering from laryngeal diphtheria with dyspnea is found very weak, toxic, or much cyanosed, or is in unsatisfactory surroundings for medical treatment, mechanical or surgical measures must be instituted. It is usually necessary to obtain quick relief, and decision must be made between intubation and tracheotomy.

The operation of intubation was made possible by Dr. Joseph O'Dwyer, of New York, who perfected a series of special tracheal tubes and forceps to introduce and extract them. A special set of instruments and considerable experience is necessary before one can feel confident of being able to successfully intubate a patient; by aid of the sense of touch in children, and by laryngoscopic mirrors in adults. Those proficient in the introduction of the "intubation tube" are prone to become enthusiastic, and it may be used in many instances where inhalations and medical measures would suffice. The art of introducing the tube, once learned, is not easy to forget, and those familiar with its use usually succeed at the first attempt. The patient's body, with the arms to the sides, should be wrapped in a blanket or other convenient covering and held on the lap and against the body of the assistant, who places one arm around the patient and supports the head and holds the mouth-gag in position by placing the opposite hand flat over the side of the head and face. Some prefer to place the patient prone on a table, but I have been better able to control struggling with fewer assistants by the first-mentioned method. The manipulations necessary to introduce the tube are clearly described in the textbooks. A tube numbered to correspond with the age of the patient is usually selected, but not infrequently proves too small or too large—more frequently the latter.

If dyspnea be due to loosened membrane protruding into the glottis, indicated by more or less easy inspiration and difficult, prolonged expiration with a moist, rattling, laryngeal sound, extreme care must be exercised after inserting a tube. In such cases a small tube may be inserted and withdrawn to dislodge the loose membrane, and not infrequently it is expelled and any further instrument is unnecessary. After such an event, inhalations may be used to advantage.

Intubation may be employed in cases of severe dyspnea with exhaustion and cyanosis, and more or less dry respiratory sounds indicating recent or closely adherent membranes.

It is well to remain with the patient some little time following this procedure, for when sufficient strength has been regained after free respirations, the tube may be expelled by the strengthened expiratory efforts, and dyspnea may return with its original severity. Recently intubation was performed by a physician in a private home. The patient did well for two days and then expelled the tube suddenly and was asphyxiated before a physician could be summoned. In hospital practice a patient was intubated in the evening, enjoyed free and easy respirations for twelve hours and then quickly became cyanosed and dyspneic, and expired in a few minutes, and before a physician on the same floor could be summoned. The tube was found plugged with membrane which had loosened during the night.

When severe exhaustion exists, injury may be done by failing to accomplish intubation in one or two attempts. The strength is severely taxed by the strug-

A position permitting of rapid adjustment for tracheotomy.

gles incident to the closure of the glottis by the tip of the finger guiding the tube. It is well, when unable to intubate successfully after two or three trials, to do tracheotomy early lest death ensue from acute dilatation.

If a very close-fitting tube is employed, a pressure paralysis may result. I had such a case, in which it was necessary to leave the tube in position nearly four weeks. I have seen 6 or 8 cases, in an institution where intubation is routine treatment for dyspnea, in which paralysis lasted from several weeks to nearly two years, it being necessary to keep a tube in the larynx during the entire time. There they have a "chronic tube ward," and it is frequently necessary to do tracheotomy before removing a tube which has been used to relieve dyspnea due to paralysis.

The glottis may admit only a tube which is readily expelled, and to introduce a large tube is either impossible or inadvisable because of the danger of presssure paralysis. One patient expelled the tube six times dur-

ing a period of ten hours, gaining only temporary relief. It then became necessary to do tracheotomy on account of the increasing weakness.

Tracheotomy is usually made after unsuccessful intubation or in extremely severe cases of obstruction, and a portion of the increased death-rate of tracheotomy over intubation may thus be explained. It is usually the operation of necessity with the private physician. With the exception of a tracheotomy tube, every physician has sufficient instruments for the operation in his pocket case, and, in the absence of a tube, a wire may be so bent as to keep the trachea edges separated, or a rubber tube prepared as suggested in Keen's "Surgery" (vol. iii) by Brewer.

Tracheotomy is indicated in obstructive cases in which it is impossible to introduce a tube large enough to be retained in position; those in which the patient is very weak and deeply cyanosed, or in which the membrane is loosening and cannot be dislodged by vomiting or introducing a tube and withdrawing. In the latter class of cases cyanosis may be intermittent. It is the operation of necessity in the absence of an intubation set and when the disease has passed the stage at which medical treatment can be used. That such conditions frequently occur there can be no doubt, and they are a strong argument in favor of every physician familiarizing himself with the methods and technic of this life-saving operation.

The fear of hemorrhage has prevented many from performing tracheotomy promptly and when first indicated. The improper handling of hemorrhage has materially raised the death-rate due to the operation. It is seldom that an unpremeditated tracheotomy is performed without some bleeding. Blood coagulates rapidly in the trachea when the air passes through and over it during respiratory struggles immediately following incision of the trachea. If the patient is not in a position to allow fluids to gravitate from the trachea into the mouth, asphyxiation may occur after the opening is made. To assist in avoiding such accidents, I have placed patients in a recumbent posture with the head well lowered. Such a position has the advantage of allowing blood to escape through the mouth, should unexpected or unavoidable hemorrhage occur, and has a beneficial influence, as well, on the circulatory and respiratory systems.

Since the majority of cases for tracheotomy occur in children, a method has been used for conveniently placing the patient in a readily adjustable position with the head well down. An assistant sits on an ordinary chair with the body leaning well forward (see illustration). An impermeable covering is placed over his back, on which the patient is placed, head downward, one leg on either side of the assistant's neck, the knees being flexed and the legs grasped by the assistant. This position is comfortable and rapidly adjustable from a horizontal to a perpendicular position at the command of the operator. The patient's neck is on a tension with head well extended, and affords free space for operation. The hands may be tied or held by an assistant. An anesthetic (seldom necessary) may be given, the operator outlines the trachea and makes a one-half inch incision through the skin below the cricoid cartilage. A tenaculum hook is passed under the first ring and traction is made on the hook, thereby bringing the trachea into prominence. The skin incision is enlarged and the soft tissues separated by blunt dissection with the scissors or knife handle. The trachea should be incised by cutting from below upward to avoid hemorrhage. The tracheotomy tube is inserted and tied in proper position and the patient placed in a bed with the foot elevated. The foot of the bed should be kept elevated for twenty-four to forty-eight hours after operation. Several layers of warm, moist gauze are laid loosely over the tube and should be changed frequently.

Emergency tracheotomy in adults may be more safely performed by lowering the head. A chair or box may be placed under one edge of a table, or the Trendelenburg position used if an operating table be available.

It may be necessary to leave the tracheotomy tube in position for several days or a week, but it may be removed and reinserted after the first twenty-four to thirty-six hours for cleansing purposes. In this length of time the wound edges are retracted sufficiently to allow passage of air. The inner tracheotomy tube should be removed and cleaned every three or four hours.

When the membrane has disappeared the tube may be carefully removed and if breathing is free through the normal route, which may be determined by placing the finger over the wound, it may be left out; otherwise it should be reinserted. A gauze dressing should then be applied and general treatment continued during the period required for recovery. Owing to the degenerative changes of all the organs, especially the cardiac muscles, produced by diphtheritic infections, it is advisable to have patients remain quiet in bed for two weeks or more after all signs of infection have disappeared. Acute cardiac dilatation with serious results may occur suddenly and without warning.

CONCLUSIONS

Physicians should be prepared and expect to treat laryngeal diphtheria, which usually presents as an emergency.

Although possessing intubation instruments, the physician may find himself without them in an emergency and be compelled to attempt tracheotomy.

Non-instrumental methods of relief are worthy of more frequent trial, especially in institutional work and in those cases in which dyspnea is increasing slowly, exhaustion is moderate, cyanosis is not severe and the surroundings are favorable.

Intubation may be performed in cases in which the symptoms indicate recent and closely adherent membranes. It should be employed only when intelligent nursing may be had and when the physician is within easy reach.

Every physician should be familiar with the technic of tracheotomy. The cadaver or lower animal may furnish opportunities in this direction.

Tracheotomy may be more easily and safely performed by using the tenaculum hook for tension on the trachea, as described above; and by placing the patient in the position illustrated.

City Hospital.

Diphtheria Antitoxin in Pneumonia.—T. Romero writes to the *Siglo Medico*, Nov. 27, 1909, to call attention to the way in which pneumonia seemed to be mitigated or aborted in a number of cases in his experience in which he injected daily from 10 to 20 c.c. of diphtheria antitoxin. In two typical instances related in detail the patients were men of 73 and 74, and defervescence was observed the fourth and fifth day of the disease, which was the second and third day after the first injection. It seems to augment phagocytosis, and the mortality was only half of the usual death rate from pneumonia. Nothing else in his experience displayed such efficacy in modifying the severity of the disease.

A NEW PROLAPSUS PESSARY

GEORGE B. SOMERS, M.D.
SAN FRANCISCO

The severer forms of prolapse of the uterus are often very difficult to relieve by mechanical means. The pessaries commonly used are of two forms: (1) those supported externally by belts or straps, like the O'Leary;

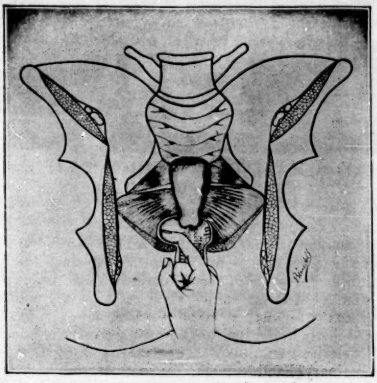


Fig. 1.—Diagram of the relations of the vaginal cavity to the levator ani.

(2) those which are self-retaining, which are in the form of discs, rings or balls.

The self-retaining theoretically should be the most convenient and comfortable, but practically they are often failures because they cannot be made to stay in place.

When it is found that the ring, the disc, or the ball will not stay in place, it is natural to ask why, and the

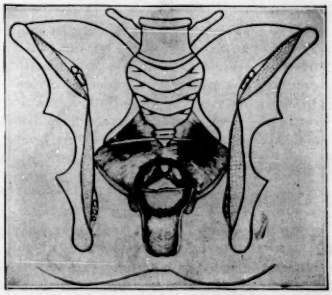


Fig. 2.—Diagram showing how a ring or ball pessary acts as a wedge, forcing apart the edges of the levator ani.

accompanying diagrams have been worked out in an attempt to show the reason.

If in preparing to fit a pessary we examine the vaginal cavity, we will find on either side a shelf (Fig. 1). This is on the upper or rectovesical surface of the levator ani muscle and corresponds to the pubococcygeal portion thereof.

Self-retaining prolapsus pessaries are inserted with the idea of simply distending the vaginal cavity and blocking the descent of the uterus. The basis of support must, in such cases, be the above-mentioned shelf portions of the levator ani.

The reason why self-retaining pessaries work their way out is sufficiently explained by comparing Figure 1 with Figure 2. It will be seen that a ring or ball acts like a wedge and tends to force apart the edges of the levator ani.

If we modify the shape of our pessary, so as to take advantage of the shelf-like supports, we find that such a shape will often give relief in cases of prolapse in which other pessaries have failed. A ring bent so as to

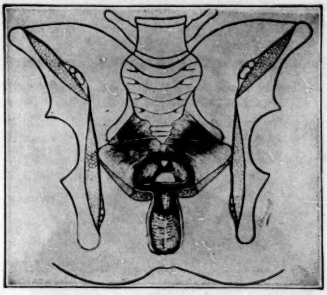


Fig. 3.—Pessory bent to follow the outlines of a mushroom.

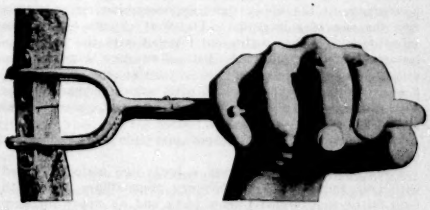
follow the outlines of a mushroom, as shown in Figure 3, has been used in the gynecologic clinic at Cooper Medical College for several years with much satisfaction.

135 Stockton Street.

FORCEPS FOR HOLDING BONE AND PLATE

ROBERT J. JAMES, M.D.
SEATTLE, WASH.

The instrument herewith shown is a forceps for holding bone and plate, devised to simplify the repair of fractured long bones with the plate and screws. With



Bone-and-plate-holding forceps.

this forceps in place, the holes can be drilled and the screws put in quickly without much traumatism to the tissues.

1314 Ninth Avenue.

Typhoid in Infancy.—In most cases the onset of typhoid is gradual and so insidious that several days may elapse before the true nature of the disease is suspected. In this respect, it conforms to the adult type.—A. F. Hamilton, in *Indian Medical Gazette.*

DERMOID CYST, ACCOMPANIED BY APPENDICITIS, IN ABDOMEN OF BOY FOUR YEARS OLD

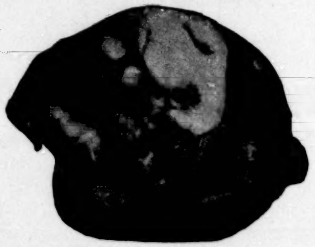
J. NORMAN WHITE, M.D.
SCRANTON, PA.

The following case is of interest because of the unusual location of the cyst and the obscurity of its origin.

Patient.—A. R., boy, aged 4, previous history negative. About one month before present illness the boy's mother noticed, when he was turning in bed a "bunch" the size of an orange in his abdomen about two inches to the right of the umbilicus. The bunch gave him no symptoms and she did not consult a physician about it.

Present Illness.—About seven days before examination, the patient began to have pain in the abdomen. He had some diarrhea and vomiting; pain, at first all over the abdomen, then localized at McBurney's point. All symptoms grew worse and the boy was admitted to Dr. Reed Burns' private hospital Sept. 10, 1909.

Examination.—Boy fairly well nourished. Large mass plainly felt and easily perceptible a little above McBurney's point. Entire abdomen distended and pressure caused pain. Boy very sick. Temperature 103, pulse 160, respirations 30. Diagnosis: Appendicitis with peritonitis, but nature of the mass uncertain.



Postperitoneal dermoid cyst removed from abdomen of boy 4 years old.

Operation.—By Dr. Burns. Incision in middle line. Pus free in abdomen, intestines distended, dark in color with patches of dirty, yellow, inflammatory exudate. Appendix ruptured, gangrenous, and adherent to the mass. Behind the peritoneum in the upper right hypochondriac region was a cyst the size of a large fist. The cyst contents had become infected, for pus was oozing out together with the pultaceous material which it contained. Patient was in a desperate condition. Pulse was imperceptible. Cyst was removed with difficulty *in toto*, appendix tied off with catgut, abdomen flushed with salt solution, glass drain placed in pelvis, gauze pack at site of the cyst.

Patient reacted but little from operation and died a few hours later.

Tumor.—The cyst contained a putty-like material mixed with hair and pus. A rudimentary premaxillary bone with four fairly well-formed incisor teeth and an upper lip were found. There was also a piece of amorphous bone the size of a chestnut.

Dermoid cysts, except ovarian dermoids, are congenital and are the result of cutaneous inclusions. They are most common about the face, neck, sacral and ovarian regions.

The origin of this cyst is as interesting as it is hard to explain, there being no viscus in this part of the body originating from the epiblast.

Bland Sutton, in Keen's "Surgery," says:

> For many years I held the opinion that dermoids had never been found growing primarily from any abdominal viscus save the ovaries, but in 1903 Mr. Arthur Hall sent me a specimen for examination in which a piliferous dermoid grew in the angle formed by the junction of the ileum and cecum between the layers of peritoneum. The parts were removed from the man after death. It is difficult on any theories adduced to explain the origin of this dermoid.

This case illustrates the well-known fact that we should teach our patients that any tumor, bunch or growth should receive surgical attention regardless of whether it gives symptoms or not. If this child had been operated on when the mother first saw his trouble, the cyst and appendix removed, his life would have been saved.

349 South Main Avenue.

A SIMPLE AND INEXPENSIVE APPARATUS FOR MAKING PHOTOMICROGRAPHS

RICHARD L. SUTTON, M.D.
KANSAS CITY, MO.

In making permanent case records of rare or unusual skin affections, a photomicrograph which shows the most typical and striking of the changes that have taken place is often of decided value. The very considerable cost of an outfit for making these pictures, however, has prevented many individual workers from possessing them.

Formerly, I employed an instrument improvised from an ordinary hand camera, the end of the microscope barrel being fitted directly to the lens board of the machine, and sunlight serving for illumination. As might be expected, the pictures secured were far from perfect, but they were better than none. At present I am using a somewhat similar but much more efficient apparatus, which was constructed at a very small cost. Figure 1 gives a fairly clear idea of the general outlines of the appliance. It consists of a base, or platform, on which is placed a focusing-box, a microscope, a ray-filter, and a small arc-lamp. The principle on which it is built is a very old one, and of course no claim to originality is made.

The dimensions of the various parts are dependent on the size of the photographs to be taken. In this instance a 5-by-7 dry plate is employed, and the outer box, or sleeve, of the "camera" was made sufficiently large to fit the ground-glass frame and holder of a view camera in which these plates are used. Both boxes are of the same length, 3½ feet, and the inner one is constructed to fit smoothly but loosely in the outside casing, so as to telescope easily. Both are made of soft white pine, stained black inside. One end of the smaller box is partly closed by means of a wooden cap, in the center of which is a round hole, 1½ inches in diameter, for the barrel of the microscope. To prevent light leakage, this opening is surrounded by a loose sleeve of soft, black cloth. On one side of the box, near this end, is screwed a small anchor block of wood, measuring 1 by 1 by 4 inches, which fits into a corresponding niche between two blocks attached to the platform. The platform is a smooth board of seasoned hardwood, 6 feet long, 9½ inches wide, and 1 inch thick. Near one end a clamp is attached, for firmly holding the microscope in place, and, eight inches back of this, are fastened two short, transverse, parallel cleats which serve to hold between them the anchor block on the bottom of the inner box when the machine is in use. At the other end of the platform, and extending forward for a distance of 4 feet, two narrow strips of wood are attached, one on either side, to prevent any lateral movement of the focusing box.

In order to prevent blurring of the plate, the intervention of a color-screen between the lens and the source of light is absolutely essential. A solution of potassium bichromate is commonly employed for this purpose, but, acting on the advice of Mr. L. S. Wood, of the Pathological Department at Harvard University, I am now using a saturated aqueous solution of picric acid. It serves the purpose admirably, and is easier to handle than the chromic acid salt. A carefully selected bottle, made of bright, clear glass and having perfectly flat sides, makes a very good container.

The source of the light to be used is often a puzzling matter. A stereopticon arc lamp is excellent, but it is clumsy and is not always readily obtainable. For this purpose I employ an ordinary dark-field illuminator. It is somewhat lacking in candle-power, but is powerful enough to bring out the details when the lower magnifications are used.

In order to secure good definition the sections must be thin and well stained. In the majority of instances hematoxylin-eosin is a very satisfactory dye. In mounting the specimens, too much balsam should not be used, and the section should be made to lie snugly between the slide and the cover-slip.

Dr. T. Casper Gilchrist, of the Johns Hopkins Medical School, who has done some very excellent photomicroscopic work, prefers to flatten the sections by first gently warming the preparation over an alcohol lamp, in order to soften the balsam, and then allowing it to remain beneath a rather heavy weight, as a large book, for twelve or twenty-four hours. Similar results can be more easily secured by the use of the small "pile-driver" compressor shown in Figure 2. The pressure is furnished by an elastic rubber band which passes over the top of the hammer and beneath the base of the little machine. The head of the hammer rests on the center of the cover-slip, while the slide lies on the platform.

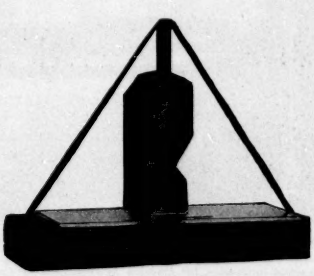


Fig. 2.—"Pile-driver" compressor for flattening sections.

When working alone it is sometimes rather difficult to focus the object properly on the ground-glass, a procedure best accomplished by manipulating the adjustment screws on the microscope after the camera box has been extended the desired distance. A small mirror, placed on the rear end of the platform and arranged to reflect the image cast on the screen, is a great aid and time saver.

After the machine has been focused, a small metal cup, which serves as a lens cap, is placed over the end of the lamp-barrel, the plate-holder inserted and the slide withdrawn. An exposure, varying in length from five to sixty seconds or more, is made by simply removing and replacing this cap.

Fig. 1.—Apparatus for making photomicrographs.

Isochromatic dry plates give the best results. Autochrome plates can, of course, be used, but the time and care required for developing them outweights their value to anyone other than an enthusiast.

610 Commerce Building.

REPORT OF CASE OF OVARIAN PREGNANCY

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Gynecologist, St. Vincent's Hospital; Surgeon, Hillman Hospital
BIRMINGHAM, ALA.

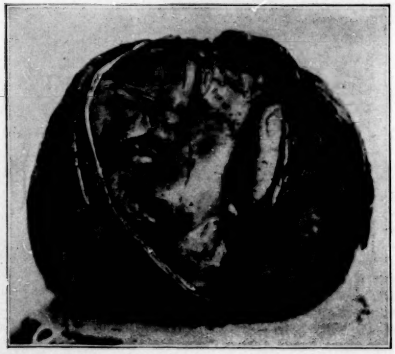
History.—E. I., aged 35, married, came to me with a large tumor of abdomen. The patient's mother had borne eight children. The patient had always been healthy up to time of present illness. She had none of the usual diseases of childhood; her weight at 15 years of age was 180 pounds. She was the mother of four children, the eldest 16, the youngest 10 years of age. Between these children twins were born, who lived to be 8 months old. The patient had been married seventeen years.

Present Illness.—This began in June, 1907, at which time the patient thought she became pregnant, as she had cessation of menstruation, nausea and fainting spells. In August, 1907, she had slight return of menses and pain in abdomen. At various times during this month pain in abdomen was quite severe. Her digestion was exceedingly poor. In November, 1907, she felt violent movements of the child and had a severe uterine hemorrhage. In February, 1908, the movements of the child were pronounced, and hemorrhage continued, some clots and "pieces of flesh" being passed. On March 1, 1908, the patient had a severe chill, lasting one and a half hours, followed by high fever for forty-eight hours. During this month menstruation returned and was normal as to time and quantity after this, and the patient suffered very little pain during her flow. Save for the large tumor in the abdomen her health was good.

Examination.—The patient appeared to be a well-nourished woman of ordinary intelligence. There were no enlarged glands of neck except a slight enlargement of the thyroid, but there were no symptoms referable to this enlargement. Her lungs and heart were normal. The liver was not enlarged and its area of dulness changed on deep inspiration, showing no adhesions between this organ and the abdominal wall. There was no tenderness over the epigastrium, and the spleen was not palpable. A large tumor was found in the lower abdominal region, which seemed more to the right than the left side. This tumor was firmly fixed and vaginal examination revealed the fact that the tumor was more to the right side and filled the entire pelvis. The tumor felt irregular, seeming to have nodules and indentations. The patient's temperature was 98 2/5, pulse 80. The white blood count was 7,800; red blood count, 4,500,000; hemoglobin, 95 per cent. (Tal.). The urine

was negative. A diagnosis was made of dermoid cyst of right ovary, and operation was advised.

Operation.—The patient was prepared by cleansing the bowels thoroughly with castor-oil, and finding amount of urine for twenty-four hours preceding operation (52 ounces). One-half gram spartein sulphate was given hypodermatically at intervals for twenty-four hours preceding operation as a prophylactic against urinary suppression. The abdomen was prepared in usual manner and patient was placed on operating table at 8:27 a. m., April 30, 1909. A median incision was made and a mass of adhesions encountered in which bowel, uterus, right tube and a large mass were matted together. These were dissected and torn away and the mass removed, which proved to be the right ovary enormously enlarged and distended. The tube could be made out on one side of this organ. The raw surfaces were covered over in the best manner possible, using as suture material for this purpose plain catgut No. 1. For ligation of large vessels chromic gut No. 2 was used. The appendix was also removed, as it was bound down by adhesions. The abdominal wall was closed by layers. The operation was completed at 9:11 a. m. Gas-oxygen anesthesia was used, supplemented by two and a half ounces of ether. The patient's pulse was 96 at commencement of operation; 100 on leaving the table.



Pregnant ovary, removed and cut open, exposing child.

Postoperative History.—The patient had no nausea or vomiting and her convalescence was uneventful. She left the hospital on the sixteenth day after the operation in good condition.

Macroscopic Examination of Specimen.—The tumor was opened and found to contain a dead child fully developed, weighing 7½ pounds. (The accompanying illustration represents the tumor after incision. The sac was submitted to Dr. J. S. McLester of this city for a pathologic examination in order to identify tissue. His report is below. Owing to the findings of the pathologist and the fact that the right tube could be demonstrated as separate and distinct from the tumor I feel that I am justified in calling this a case of true ovarian pregnancy.

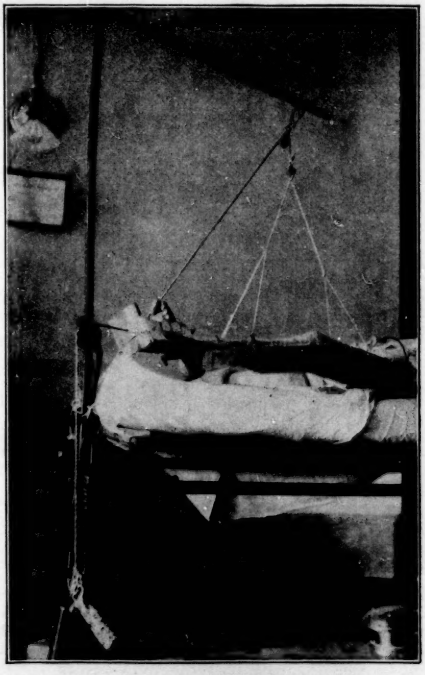
Microscopic Examination of Specimen.—The specimens of tissue which were removed from six (approximately equidistant) points on the sac in your recent case of ectopic pregnancy, were frozen for sectioning and present the following appearance: In each of the six specimens are seen corpora lutea, or, more properly speaking, the remains of these bodies, the so-called corpora albicantia. The stroma is identical in appearance with that ordinarily found in the ovary. I feel justified in concluding from the presence of the above mentioned structures, that each specimen was taken from the ovary.

109½ North Twentieth Street.

AN IMPROVED METHOD OF USING TRACTION IN THE TREATMENT OF FRACTURE OF THE FEMUR

LEWIS A. STIMSON, M.D.
Professor of Surgery, Cornell University
NEW YORK

Certain practical disadvantages in the use of Buck's extension in the treatment of fractures of the femur have long been familiar to the profession. They are the relative fixation of the limb to the bed, with its consequent relative immobilization of the body, and the lack of efficient lateral control of the broken ends of the fragments. Volkmann's chariot did something to relieve the former, in that it permitted the position of the limb and body to be shifted up and down in the bed, but we are all still familiar with the irksomeness of the confinement and with the frequently repeated requests of the patients to relieve their discomfort by some shift of position or adjustment of the dressing.



An improved apparatus for traction in treatment of fracture of the femur.

The Hodgen suspended splint was a great improvement in this respect, and, in addition, gave the opportunity measurably to control the ends of the fragments by adjustment of the supporting bands, and for many years in my practice it has almost wholly superseded the Buck and Volkmann combination.

In fractures close above the condyles and in those of the neck in the old, it is eminently satisfactory. But

it has the drawback that the amount of traction cannot be accurately measured or always efficiently maintained without constant attention, and that it cannot always be so adjusted as to give and maintain the powerful traction often needed in fractures of the mid-shaft in the robust and in some of the neck in the young.

For about three years now I have employed a combination of the two—traction by weight and pulley and suspension by the Hodgen splint—and have found the results so satisfactory that I desire to make the method more widely known. The traction can be accurately measured and maintained, transverse displacement can be corrected and prevented by adjustment of the supporting bands, and the comfort of the patient is vastly increased. Whenever I substitute it for a Buck's extension that has been worn for a week, the patient testifies to prompt and gratifying relief.

The materials required are the adhesive plaster, pulley and weight of Buck's extension, a Hodgen splint, and provision for suspension. For the Hodgen splint of the shops a substitute can be made of a stout iron rod bent to the shape of an elongated U, the arms of which are nearly as long as the limb; it should be slightly bent at the point corresponding to the knee in the direction of flexion of that joint. The curve of the U is to lie below the sole of the foot.

For those who are not familiar with the use of the Hodgen splint some details may be useful. From side to side of it should loosely pass five or six doubled pieces of roller bandage on which the limb is to rest; the center of each piece should encircle one side-bar of the splint, and the ends should be tied together over the other so that it can be readily tightened or loosened. Or single bands made fast with safety-pins can be used. To each side-bar a cord is attached, one end just above the ankle, the other a little below the upper end, each cord being about half as long again as the distance between its attachments, and a single cord for suspension is tied about their bights. This latter cord may be attached to a stout hook in the ceiling or to any other improvised fixed point, which, preferably, should be 3 or 4 feet above the bed. A convenient support can be made of two pieces of gas-pipe united by an elbow, as shown in the illustration.

The wheel over which the cord bearing the weight passes should be twelve or eighteen inches beyond the sole of the foot, in order that lateral shifts of the patient's position in the bed may not notably affect or be affected by the line of traction.

The adhesive straps are applied to the limb, and their ends to the spreader and the cord bearing the weight, as in arranging for Buck's extension. Then the supporting bands attached to the splint are passed under the leg and thigh, the bands being of such length that the side-bars will be a little below the level of the anterior surface of the limb, the supporting cord attached, and the limb raised so as to swing clear of the bed. Then such adjustment of the supporting bands of the splint as may be needed for the patient's comfort or to make the support uniform, is made.

After the full effect of the traction has been obtained, such coaptative pressure on the fragments as may be indicated can be obtained by tightening or slackening one or the other of the bands supporting the thigh to move the affected end antero-posteriorly; or, to move them laterally, by two bands attached one to each side-bar and tightened to make lateral pressure in opposite directions upon the two ends. In the latter case the upper ends of the side-bars must be held apart by a hoop-spreader, as shown in the illustration.

THE TYPHUS FEVER OF MEXICO (TARBADILLO)

PRELIMINARY OBSERVATIONS *

H. T. RICKETTS, M.D.
AND
RUSSELL M. WILDER
CHICAGO

It will be recalled that Nicolle[1] and his associates recently have greatly advanced our knowledge of typhus fever by two achievements. First, it was shown that the disease could be transmitted to the chimpanzee by the injection of the blood of human patients, and in a similar way from the chimpanzee to the macacus monkey (*Macacus sinicus*). Strangely they were not able to infect the macacus directly with virulent human blood.

Their second important result consists in the transmission of the disease from macacus to macacus by means of the ordinary body louse (*Pediculus vestamenti*). From the epidemiologic conditions which prevail in Tunis they were able to rule out the flea and the bedbug as carrying agents.

When the moneky has once been infected with the louse, they attempted to transfer the disease from animal to animal by means of injection from the first monkey, but the experiments resulted only in what were considered abortive attacks of typhus. Hence they concluded that the virus underwent a loss of virulence in the monkey.

They obtained apparently typical eruptions in both the chimpanzee and the monkey, but not uniformly in the latter.

Recently also, Anderson and Goldberger[2] apparently have been successful in transmitting the typhus fever of Mexico to a macacus and a capuchin by the direct inoculation of virulent human blood.

Their success in this regard and Nicolle's failure (i. e., to infect the monkey by direct injections of human blood) would seem to bring into question the identity of European typhus with that of Mexico. Prominent Mexican physicians, indeed, for some years have contended that the two are not identical, the chief difference being in the slower onset and defervescence of the Mexican disease. This is particularly true in adults. In children the onset and defervescence of the Mexican disease resemble the European more closely.

It seems that the relationship of the two cannot be decided definitely without a more detailed experimental comparison. They may be very closely related, though perhaps not absolutely identical, particularly in view of the fact that both are probably carried by the body louse.

We may now describe some of our own experiments bearing on the transmission of the disease to the monkey and the non-filterability of the virus.

I. TRANSMISSION TO THE MACACUS BY INJECTION

We have been able to confirm the probable susceptibility of the monkey to inoculations with the blood of patients suffering from the typhus fever of Mexico, as reported briefly by Anderson and Goldberger, and to obtain additional information regarding the degree of susceptibility of this animal.

In the two monkeys which apparently were infected by Anderson and Goldberger, multiple inoculations were

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1. Compt. rend. Acad. sc., July 12, 1909, cxlix; Sept 6, 1909, cxlix.
2. Anderson and Goldberger: Pub. Health Rep., Dec. 24, 1909.

used. Their macacus received a total of 20 c.c., divided into three injections, and the capuchin a total of 8 c.c., in two injections.

In our inoculations single injections were given, the animal being *Macacus rhesus*.

On January 11, a quantity of blood was drawn from the median basilic vein of José Hermandez, a patient in the *Hospital General* (Mexico City) on the eighth day of his sickness. The fever and condition of the patient were typical for an attack of typhus of this duration, the attack being one of moderate severity. Although the skin was quite dark, the spots, not yet petechial, could be seen over the abdomen, chest, axillary skin, arms, legs and back, and the conjunctivæ were reddened characteristically. The spleen showed little or no enlargement on percussion, and it could not be palpated. Since the blood was drawn the patient has passed through a typical "crisis," which occupied about three days, and is now convalescent.[3]

Two cubic centimeters of the blood of the patient planted in 50 c.c. of broth have remained free from discoverable microorganisms, which corresponds with the usual results of cultivation experiments with typhus blood.

Blood Inoculation Experiment.—Inoculations of 1, 5 and 10 c.c. of defibrinated blood were made respectively into Monkeys 5, 6 and 7. No. 5 died five days after its inoculation, showing a consolidation of the lungs, and since it had had no fever, it was discarded from the experiment. In addition, Monkey 4 received 8 c.c. of the serum from the same blood.

The blood after defibrination stood at room temperature (15 to 20 C.) and in diffuse light, for from six to seven hours before injection.

The 5 c.c. of blood which Monkey 6, weighing 2010 gm., received was diluted to 15 c.c. with sterile physiologic salt solution, and the entire amount introduced intraperitoneally. Its temperature on successive days was as follows:

	9:00-10:00 a. m.	3:00-4:00 p. m.		9:00-10:00 a. m.	3:00-4:00 p. m.
1/11	.....	100.9	1/17	100.2	104.9
1/12	99.0	.....	1/18	97.6	104.3
1/13	99.3	101.4	1/19	103.3	101.8
1/14	100.1	102.4	1/20	97.0	101.0
1/15	100.4	103.6	1/21	99.1	93.0 *
1/16	97.3	102.7			

* Death.

On January 17, six days after inoculation, the animal ate little, and sat "huddled-up," with hairs more or less erect. This condition continued, and on the 19th there was increased secretion from the conjunctivæ, and the animal coughed moderately. The illness appeared more severe on the 20th; there was no resistance to manipulation; emaciation; moderate diarrhea. On the 21st, when the temperature became subnormal the animal was still somewhat responsive until about the middle of the afternoon, when its condition grew rapidly worse, and at 9 o'clock it was moribund.

The autopsy, which was performed at once, showed nothing distinctive, and very little that appeared abnormal. The lymph-glands generally were moderately enlarged, but were not congested or hemorrhagic. Those of the axilla and groin were the seat of old pigmentation. The lungs were pink, and showed no inflammation or other alteration except for a slight amount of atelectasis at the upper border of the left lower lobe. The pleuræ were free from signs of inflammation. Moderate swelling of both the kidneys and liver were present, but they were not degenerated. The spleen was rather firm but not distinctly enlarged. No evidence of infection was found in the peritoneal cavity. The meninges and cerebral cortex were free from congestion, edema or other signs of inflammation.

A bouillon flask culture from the heart's blood, and agar slants from the viscera, remained sterile.

Monkey 7, a male weighing 2150 gm., received 10 c.c. of the same defibrinated blood, made up to 20 c.c. with salt solution. One-half the quantity was injected intraperitoneally, the other half subcutaneously. Its temperature on successive days is given below.

	9:00-10:00 a. m.	3:00-4:00 p. m.		9:00-10:00 a. m.	3:00-4:00 p. m.
1/11	.....	104.0 *	1/19	102.2	105.2
1/12	101.8	102.6	1/20	102.7	105.6
1/13	100.8	102.9	1/21	102.4	105.6
1/14	100.2	102.7	1/22	103.2	106.6
1/15	100.5	104.1	1/23	100.6	104.8
1/16	101.4	104.3	1/24	105.1	105.4
1/17	98.0	105.1	1/25	103.2	104.6
1/18	100.4	104.7	1/26	103.1	107.2

* Before injection.

The animal first began to appear sick on the 16th, the second day of fever. On the 17th it made little resistance to manipulation and from this on it appeared distinctly ill and ate little. It developed no marked diarrhea, although the stools became rather soft. While the temperature became high the animal at no time lost its responsiveness. The conjunctivæ were not noticeably reddened, and a distinct eruption could not be identified. After a rather long and severe course, the animal recovered.

Monkey 4, weighing 1800 gm., received 8 c.c. of serum of the same blood; the serum was obtained by defibrination and centrifugation. This quantity was diluted to 25 c.c. with salt solution, one-half being injected intraperitoneally, the other half subcutaneously. The temperature on successive days was as follows:

	9:00-10:00 a. m.	3:00-4:00 p. m.		9:00-10:00 a. m.	3:00-4:00 p. m.
1/11	.....	103.6 †	1/17	104.2	104.2
1/12	100.0	.....	1/18	101.5	104.2
1/13	99.4	103.3	1/19	103.2	103.5
1/14	99.7	102.1	1/20	101.1	103.0
1/15	100.4	103.4	1/21	100.6	103.7
1/16	101.3	102.9	1/22	*	**

† Before injection.
* Too low to register.
** Death at 6 p. m.

On the 17th, the first day of distinct fever, the animal, which had hitherto appeared vigorous and healthy, looked sick, unkempt, its hairs stood up, and it "huddled up" even in the sun. This condition continued, food was refused, and emaciation developed. On the 20th a moderate diarrhea appeared and continued until death. On the afternoon of the 22d it became soporose, and died at about 6 o'clock. An eruption which could be referred positively to the infection, or bearing a resemblance to that of typhus fever, could not be identified. An "eruption" which did appear on the skin of the lower chest and the upper portion of the abdominal skin probably was accidental. On the 18th, the second day of fever, the monkey had been bled from the heart, for cultivation and other experiments. A small amount of blood escaped through the skin when the needle was withdrawn, and at autopsy it was found that some subcutaneous hemorrhage had occurred and that the blood had "diffused" posteriorly in the form of a rather narrow band, following the median line. The "eruption" was roughly median although it extended about an inch beyond the visible limit of the subcutaneous extravasation. In character, it was at first pink, that of the early rose spot, and seemed to disappear on pressure. It appeared two days after the heart had been punctured and on the fourth day of fever. On the following day and subsequently it became darker, more or less cyanotic in color, and could not be effaced by pressure. The spots were rather ill-defined, and appeared to consist of collections of minute punctiform hemorrhages. A similar condition could not be identified on other parts of the body, and in view of the subcutaneous hemorrhage which complicated the situation, it seems probable that the eruption had its source in the latter rather than as a manifestation of typhus fever.

At the autopsy, the lungs were found of a normal pink color; there were no signs of inflammation. On the visceral pleura, particularly of the left lung, were a number of small, circular, dark-red hemorrhages from 0.5 to 1.5 mm. in diameter. The pleural cavities were normal; the heart normal; no inflammation of the valves or pericardium. The liver was apparently somewhat enlarged, pale, as if fatty, but showed little or no congestion; the lobules were well marked; anterior border distinctly rounded. The spleen was about 1.5 cm. longer than that of Monkey 6, and perhaps a few millimeters broader; was distinctly enlarged, bluish red in color, and of rather firm consistence; contained no hemorrhages.

3. Both the onset and the crisis of the typhus fever of Mexico are said to be less abrupt than in the classical European typhus. This has been contended by prominent Mexican authorities, and has appeared in their literature, for a number of years.

The kidneys were perhaps a little enlarged and moderately congested; cortex and pyramids of a homogeneous normal color; striations normal; the cortex had a relation to the medulla of about one to one.

The mucous membrane of the colon was much reddened, and perhaps even hemorrhagic; the colon contained a large amount of glairy mucus but no blood or feces. The mucous membrane of the ileum appeared normal, and the ileum contained nothing but a slightly viscous yellowish fluid; there was a short intussusception with no inflammatory or obstructive signs of the parts involved. The duodenum contained bile-stained mucus, the mucosa being normal. The stomach contained some undigested banana and mucus.

The lymphatic nodes everywhere seemed more or less enlarged but were not congested or hemorrhagic. Those of the groin and axilla were almost black from some previous pigmentation.

The meninges showed a good deal of congestion and edema, the fluid being perfectly clear. The cerebral cortex appeared normal. Other parts of the central nervous system were not examined.

Cultures, as in the case of No. 6, remained sterile, including those from the meninges.

As basis for interpreting these experiments, we have for consideration: the existence of an incubation period which was approximately the same in all three animals, and during which they remained healthy; the occurrence of illness and fever followed by the death of two of the animals; the sudden onset of fever and illness, and the rapid defervescence in the animal which recovered; the negative outcome of cultures; and the more or less negative findings at autopsy, corresponding with the condition in typhus in man.

The temperature curves of Monkeys 4 and 6 suggest that the interpretation of infection purely on the basis of the fever manifested may be attended by difficulties in some instances. The variations between the morning and afternoon temperatures of uninfected and apparently healthy monkeys is often considerable, and in our experience has not been constant in the same animal from day to day; marked variations have been encountered when different animals, apparently healthy, were compared. The morning temperatures of healthy controls have habitually been from 0.8 to 1.8 or 2.0 degrees lower than those of the afternoon. The former is commonly below 102.0, and may lie between 99.0 and 101.0 for several days in succession; whereas in the afternoon (from 3 to 4 o'clock) it commonly is found at some point between 102.0 and 103.0. The comparatively cold nights and the warmer days may have some influence on the more extreme variations. We have attempted to eliminate this factor as much as possible by warming the room from the hours of 5 p. m. to 9 a. m., the temperature at night being about 15 C. During the warmer portion of the day the animals have been placed where they could avail themselves of the sun.

It is noteworthy that No. 6 on only one day, the 19th, exhibited a morning temperature (103.3) which was distinctly above the normal for that hour, and that on only two days after illness began (17th and 18th) was it distinctly above the normal for the afternoon, yet from the 17th on it was manifestly a very sick animal. The temperature was subnormal for two days preceding death.

In No. 4 the morning temperature was above the normal limit on two days (17th and 19th) and in the afternoon on five successive days, the period of subnormal temperature preceding death being much shorter than in the case of No. 6.

In No. 7 the morning temperature was somewhat above the expected normal (being from 102.2 to 103.2) for four successive days, and in the afternoon there was rather marked elevation for ten successive days.

The short course of the fever and the fatal termination in Nos. 4 and 6 may perhaps be accounted for by a relatively low resistance on their part.

In drawing the line between the end of the incubation period and the onset of disease, the general appearance and behavior of the animal appear to be of equal or greater importance than the temperature alone; taken together they are a sufficiently satisfactory index.

There is some difference between the incubation period of Nos. 4 and 6, on the one hand, and No. 7, on the other. In the two former it lay between five and six days, whereas in the latter it was reduced to four days or less. The difference in dosage may have accounted for this.

It is worthy of comment that the smaller dose (5 c.c.) which No. 6 received seemed more virulent than the 10 c.c. administered to No. 7. Differences in the resistance of individuals may, of course, be called on to explain this. No. 6 received its entire injection intraperitoneally, whereas in No. 7 the amount was divided equally between the peritoneal cavity and the subcutaneous tissue. Whether there is a difference in virulence depending on the route of injection has not been determined. No. 4 is hardly comparable with 6 and 7 in this regard inasmuch as it received serum rather than defibrinated blood.

We may further call attention to the fact, as mentioned at the outset, that a single injection of virulent blood, as well as the multiple injection used by Anderson and Goldberger, is capable of producing infection, and this with a short incubation period. It is unfortunate that the animal which received 1 c.c. of the virus died of other causes, since it was hoped that this injection might furnish some index regarding the degree of susceptibility of the monkey. This is important from the point of view of insect transmission, which would seem to demand an animal of rather high susceptibility. The more exact susceptibility of the species will be studied further.

It is of some significance, too, that the serum appears to be infective as well as the defibrinated blood. As yet we have no data concerning the relative infectivity of the two, further than that 8 c.c. of serum appeared to be as virulent for No. 4 as 5 c.c. of blood was for No. 6.

The material injected was diluted with salt solution on theoretical grounds, and because experience with Rocky Mountain spotted fever suggested that dilution of the virus might favor infection. Dilution is known to render less effective specific antibodies which may be destructive to the virus, and there can be little doubt that blood drawn from typhus patients on the eighth day of the disease contains germicidal antibodies, particularly since the disease is one which, clinically, is known to cause the development of distinct immunity. Dilution may also favor infection through the peritoneal route by affording better conditions for rapid absorption or dissemination of the micro-organisms. In experiments with spotted fever we have noted occasionally that smaller doses of virus would cause infection when larger doses of the same material would not, the injections being intraperitoneal. Small doses, as 0.01 c.c., are usually diluted with 2 or 3 c.c. of salt solution, whereas larger doses, as 5 c.c., are diluted to a much less degree or not at all.

The moderate diarrhea which appeared in No. 6 was probably of no significance, inasmuch as certain of the uninoculated animals were similarly affected. We may, however, call attention to the fact that some Mexican

observers insist that there is a certain degree of intestinal disturbance in typhus in man, manifested frequently by diarrhea, and the right iliac region is habitually examined clinically for signs of such disturbance. We have observed such disturbance in a number of instances, but have no personal knowledge of its relationship to typhus fever.

We are hardly in position as yet to make a thorough comparison of the infection in the monkey with that in man. It may be stated, however, that the incubation period as obtained by this method of infection was shorter than that which is accepted for man, the latter being in the neighborhood of ten to twelve days. Manifestly this is subject to considerable variation in experiments, since in the macacus infected by Anderson and Goldberger it was twelve days, and in our No. 7 only four days.

The duration of typhus in man varies, according to Dr. Genaro Escalona, from about twelve days in children, in whom it is comparatively mild, to twenty-one or twenty-four days in adults. In Monkey 7 the course lasted for approximately twelve days.

The onset in all three animals was sudden and the defervescence in No. 7 moderately rapid, comparable to the conditions in human patients. In man the temperature is said to rise gradually for from three to four days, when the fastigium is reached, the morning remissions being marked, as in the case of the experiments described. In man also defervescence occupies from three to four days, followed by from two to four days of subnormal temperature, corresponding to the conditions in Monkey 7.

Bacteriologically the conditions are similar, in that attempts at cultivation by ordinary methods have given negative results.

Likewise the findings at autopsy are similar, nothing distinctive being found in the animals, as is the case in human beings. The cerebral congestion and edema of No. 4, the slight or moderate enlargement of the spleen, congestion of the abdominal viscera, doubtful or moderate enlargement of the lymph-glands, and the absence of localized inflammations, are conditions which are commonly found in man. The negative findings appear to be of more diagnostic significance when considered with the clinical course, than positive anatomic changes. Degeneration of the liver and kidneys are frequently found in man, but they are not a necessary accompaniment of fatal infections.

In the experiments performed so far, there is a lack of correspondence with the human infection, in that no eruption resembling that of typhus appeared in the animals. Although it would be gratifying to reproduce this phenomenon, failure to do so can hardly constitute a valid argument against the character of the infection in the monkeys. We recall that not all monkeys and guinea-pigs infected with spotted fever exhibit the eruption, and the conditions may be similar in typhus.

Eventually it seems probable that the nature of the infection in all cases of recovery can be checked up by means of immunity tests. The disease appears to be one which, in man, confers distinct immunity, and animals which have once suffered from the infection should be immune to further inoculations. This will be investigated and reported on at a future date.

II. FILTRATION EXPERIMENT

With the desire of obtaining information about the virus of the disease, especially as having a possible bearing on the approximate size of the micro-organism, we have performed a filtration experiment which it is desirable to report.

Of the blood referred to in the previous experiments, 34 c.c. were centrifugated until the corpuscles occupied approximately the lower three-fifths of the column. The overlying serum was drawn off and replaced by an equal amount of sterile salt solution. The corpuscles were thoroughly mixed or washed with the latter and again centrifugated moderately, after which the overlying fluid was added to the first portion. This was repeated again and the three fluid portions then combined. It seemed probable that through this procedure one might obtain a larger quantity of micro-organisms in the fluid than by resorting to a single more vigorous centrifugation. This seemed better also than to attempt to filter the uncentrifugated blood, which indeed is an almost impossible task with moderate pressures.

It seems sufficiently accurate to consider that the defibrinated blood consisted of about equal parts of serum and corpuscles, and that we obtained the equivalent of about 17 c.c. of serum by this washing process.

For the purpose of filtration the serum was diluted to 51 c.c. by means of salt solution, and this quantity was divided into two equal portions, one to be filtered and the other to be injected without filtration.

The first portion was passed through a small Berkefeld candle, and with the threefold dilution it filtered readily. The filter was washed by passing through it an additional 5 c.c. of salt solution, this filtrate being added to the first.

The interval between the drawing of the blood from the patient and the injections was from six to seven hours, as in the preceding experiments.

The total quantity of each portion was approximately 25 c.c., of which one-half was injected intraperitoneally, the other half subcutaneously, after suitable preparation of the skin.

The result of the injection of the unfiltered serum into Monkey 4 was given in the first part of this paper, it being our conclusion that the animal became infected with and died of typhus fever.

No 3, which received the filtered serum, exhibited the following temperatures on successive days:

	a. m.	p. m.		a. m.	p. m.
1/11	.....	103.2	1/18	102.6	102.5
1/12	102.5	102.6	1/19	103.6	101.6
1/13	102.8	103.3	1/20	102.6	103.6
1/14	102.7	103.6	1/21	101.9	103.9
1/15	103.6	103.8	1/22	102.6	104.4
1/16	103	102.6	1/23	101.6	102.7
1/17	103	102.8	1/24	101.7	103.6

In spite of rather high morning temperatures, the animal has been in apparently perfect health since the date of inoculation, which is in distinct contrast with the course shown by No. 4. As stated previously, the latter, after an incubation period of about six days, developed fever, grew sick, and died eleven days after inoculation, with findings which are in harmony with those of typhus fever.

We may therefore conclude that the virus did not pass through the filter employed, or if it did, that it did not pass through in a quantity sufficient to produce recognizable infection. It seems probable, therefore, that the virus of the typhus fever of Mexico may be classed with the unfilterable. It is, of course, to be understood that the micro-organisms may find their way through filters of greater porosity which may be encountered, or through filters with thinner walls. It is possible, too, that they may even pass through filters of the type and thickness employed in this experiment, in quantities which are sufficient to vaccinate, but not suffi-

cient to produce virulent infection. As affording an analogy for this possibility, it may be mentioned that we have on several occasions produced extremely mild attacks of spotted fever in the guinea-pig, resulting in permanent immunity, by the injection of very small doses of virus. This possibility will be investigated.

III. THE QUESTION OF CONTAGIOUSNESS AND TRANSMISSION BY INSECTS

Although the old idea that typhus is a contagious disease still has strong supporters in Mexico City, the conception that insect transmission is in better accord with the epidemiologic conditions is prominent in the minds of those who are in daily contact with the disease.

Without giving a detailed presentation of the conditions at this time, it may be stated that of the three insects which are most open to suspicion, i. e., the louse (*Pediculus vestamenti*), the bedbug and the flea, only the first would seem to merit serious consideration, because of the epidemiology of the disease. This conclusion is, of course, strongly supported by the results already obtained by Nicolle.

The season of greatest predominance of typhus in Mexico City (the spring) does not coincide with the period of greatest prevalence of the flea (summer). And, regarding the bedbug, we have knowledge of individual cases which, it would seem, could not possibly have been carried by this insect.

Although our own experiments with the louse, which have been under way for some time, have not yet resulted in transmission, they will be carried further and reported in detail at a future date.

We take pleasure in acknowledging our great indebtedness to the local authorities and physicians of Mexico City who have cooperated with us in various ways: more particularly to Dr. Gavino, Director of the Bacteriologic Institute, where we enjoyed the advantage of a well-equipped laboratory, and to his assistant, Dr. Girard; as well as to Drs. Fernando Lopez and Genaro Escalona, of the General Hospital.

1360 Fifty-eighth Street.

A STOPPER FOR BLOOD-COUNTING PIPETTES

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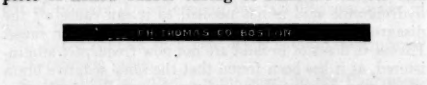
This device is intended to keep the contents of an ordinary blood-counting pipette from flowing out of either end, while being carried in the apparatus case. It was designed to take the place of the ordinary rubber band commonly used for this purpose. It consists of a piece of hollow rubber tubing of sufficient caliber and



length, closed at both ends with solid rubber plugs which are vulcanized to the rubber tubing. The tubing between the plugs is cut in halves longitudinally, thus allowing the insertion of the pipette. Its advantage is that it does not admit of the pipette being forced through the ends of the rubber by reason of the tension thereof, thus allowing the escape of the contents of the pipette, as may happen with the simple rubber band.

405 Marlborough Street.

Therapeutics

SUGGESTIONS FOR THE PHARMACOPEIA OF 1910

USEFUL DRUGS OF THE PHARMACOPEIA OF 1900

OLIVER T. OSBORNE, M.D.
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NEW HAVEN, CONN.

(Concluded from page 377)

EXPECTORANTS

The best drugs to increase the secretion of the mucous membranes of the upper air tract are ammonium chlorid in small doses, ipecac, and iodids.

While ammonium chlorid is disagreeable to take, if given in a sour mixture it is not seriously unpleasant. Just because a patient happens to have a cold of some sort it is no reason why he should have his stomach knocked out, his digestion interfered with, and his appetite lost by nasty, sweet-tasted expectorant mixtures. There is no need for squills in any form as an expectorant. There is no need for senega in any form as an expectorant. The syrup of tolu makes a nice, smooth menstruum, but still is sweet. Tolu has no expectorant properties whatsoever. The syrup of wild cherry is not unpleasant, but still is sweet, and any sedative effects from the minute amount of hydrocyanic acid that it contains is mythical. These last two syrups, however, should be retained in the Pharmacopeia as making a change in the appearance and taste of a cough mixture that must be repeated if the previous taste palls on the patient. There is no use for the fluidextract of wild cherry.

Of all expectorants or stimulants to mucous membrane secretion, there is none yet offered that is better than ammonium chlorid. Small doses of it in the early stages of congestion, frequently repeated, and larger doses, infrequently repeated, in the second and third stages of bronchitis, or an allied condition, should be given.

Ipecac is another valuable drug to increase the secretion of mucous membranes. It renders the mucus more liquid and less tenacious. The dose as an expectorant should be very small, as large doses, of course, will cause nausea. There is also no specific ability of ammonium chlorid and ipecac to act only on the mucous membranes of the upper air passages. They are just as valuable for catarrh of the bile ducts, or any other mucous membrane.

The following combination as an expectorant is a good one:

R.	gm. or c.c.		
Codeinæ sulphatis	20		gr. iv
Ammonii chloridi	5		3iss
Syrupi ipecacuanhæ	5	or	fl.3iss
Syrupi acidi citrici	25		fl.℥i
Aquæ, ad	100		ad, fl.℥iv

M. et Sig.: A teaspoonful, in water, every two hours.

The above prescription is simply a frame. The codein might be omitted if there were no unnecessary cough, i. e., cough without expectoration. Heroin might be used in its place, if one preferred. The dose of the ammonium chlorid might be increased, and the frequency of the administration decreased. The ipecac might be omitted, if the expectoration were free. If the patient were a child, the syrup of citric acid might be changed to syrup of tolu or syrup of prunus virginiana, if deemed best.

If the syrup of tolu is used it must always be remembered that it is a saturated syrup, and to dissolve salts, as ammonium chlorid, water should be added to the prescription. The syrup of wild cherry, on the other hand, will take up more salts. The above sour preparation, however, will not disagree with any stomach, provided that the ipecac is carefully measured by the druggist, and not carelessly and thoughtlessly "just poured" into the bottle.

There is no reason for using ammonium carbonate as an expectorant. It is too irritant and will upset most stomachs, and has no expectorant advantages over ammonium chlorid. If stimulation is required, it should be obtained in some other manner.

The value of iodids in asthma and chronic bronchitis is unquestioned. The dose can only be determined by the need of the patient and his susceptibility to it. The best way to administer iodid is in a saturated solution, and as many drops given as seems advisable, either in a considerable amount of water or in milk, either directly or in an hour after meals. If it seems better to order the iodid in larger solution, in teaspoonful doses, plain water should be used, and this given well diluted as above.

There is no tangible reason why the old syrup of sarsaparilla compound should be perpetuated, either for itself or on account of its frequent use as a menstruum for iodids. It is disagreeable and useless. Sarsaparilla soda and sarsaparilla water make very pleasant drinks, but sarsaparilla as a drug has no standing. There is also probably no reason for perpetuating guaiac. It is nasty and probably inert. Thus the next Pharmacopeia could be relieved of sarsaparilla, its fluidextract, its compound fluidextract, and its compound syrup; and guaiac, its tincture, and its ammoniated tincture.

To decrease a profuse secretion of the mucous membranes of the air passages, larger doses of ammonium chlorid are valuable, given three or four times in twenty-four hours. Terpin hydrate is valuable, and atropin is a temporary symptomatic treatment, or, if deemed advisable, codein, heroin, or morphin may be given. The narcotics should, of course, not be used in prolonged catarrhal conditions without careful decision as to the necessity.

A most valuable drug in profuse catarrh of the upper air passages is terpin hydrate. It is useless to give this drug in solution when no solution will dissolve more than 2 grains to the teaspoonful, and 2 grains is too small a dose. The foolish, sickish, syrupy, sticky white pine, codein and terpin hydrate mixtures are very bad treatments for the stomach. Terpin hydrate in capsule, or in tablet (which should be crushed) in a dose of 0.30 gram (5 grains) every four hours, combined, if deemed advisable, with a very small dose of codein or heroin, is valuable treatment, and perfectly satisfactory.

Creosote expectorants will soon disturb the stomach and interfere with the pancreatic digestion, and, however valuable some may think creosote is in pulmonary tuberculosis, it is certainly entirely unnecessary to administer a poison, as is creosote in any form, to a patient with simple bronchitis. The permanent value of creosote in pulmonary tuberculosis is still a matter of doubt. The primary diminution of secretion and the primary stimulation of the appetite is almost invariably followed by a secondary condition of depression, bad digestion, loss of appetite, coated tongue, and irritation of the kidneys.

CARDIAC DRUGS

The drugs used to act on the heart and blood vessels are mostly of great importance. As veratrum acts very similarly to aconite, personally, I should be willing to have it removed from the Pharmacopeia. This would remove also its tincture and its fluidextract. As the use of cardiac depressants has become less and less frequent, and even aconite is very much less frequently used than it was, and as the coal-tar antipyretics have their place and usefulness in the first stages of acute disease, aconite could represent all of the cardiac depressant action that is needed. As previously stated, veratrina, its oleate and its ointment should be removed from the Pharmacopeia.

Convallaria and its fluidextract could be omitted, as its activity is very slight, and it is much inferior to other cardiac tonics.

As the alkaloid strychnin is never used as such, it being only used as one of its salts, it and other pure alkaloids could be omitted from the Pharmacopeia and the bulk of the Pharmacopeia would be less.

ANTISPASMODICS

The various drugs used as antispasmodics or cerebral stimulants, some of which have psychic effect alone, may perhaps be well continued in the next Pharmacopeia. It is doubtful if asafetida or valerian have any special activity outside of their carminative effect, but the former might be perpetuated in the pill. The tincture is not needed, and it is doubtful if the emulsion is of any value, even in children. If disagreeableness is looked for in the activity of valerian, the ammoniated tincture of valerian might be continued. The fluidextract and tincture are unnecessary. The zinc valeras might well be omitted.

Sumbul, its fluidextract and extract are not needed in the next Pharmacopeia, as an activity from sumbul is open to great doubt.

Cannabis indica is of such uncertain activity and strength that it would seem best to perpetuate only the preparations that are most likely to be of value, viz.: the fluidextract and the tincture. The extract is not needed.

An hypnotic that could well be omitted is sulphonal (sulphonmethanum). Its action is perfectly similar to trional (sulphonethylmethanum), and the trional is much more quickly and satisfactorily active.

Potassium bromid and sodium bromid are the only bromid salts that are needed. Ammonium bromid is disagreeable and carries with it no stimulant action from the ammonium. The lithium bromid is irritant to the stomach and has no different activity from the first two salts. The calcium bromid is also not needed. The strontium bromid is less soluble and thought to be better tolerated by the stomach, but, as larger doses must be given to obtain the bromin effect desired, it has no advantage over potassium or sodium bromid. Therefore the extra expense of this salt is not justified. Dilute hydrobromic acid is not needed, as it can cause all the disagreeable symptoms that potassium bromid can cause. Excessive doses of bromid are not now frequently administered, as it has been found that the same sedative brain effect may be caused in epilepsy by smaller doses of a bromid if sodium chlorid is removed from the diet. For prolonged use, the sodium salt is the best, as the sodium element is less depressing than the potassium element. To give bromid, for any reason, for any length of time is to acknowledge defeat in the treatment of the condition, as it is only symptomatic treatment, but at the same time, in epilepsy, at least, it is often a valuable one.

DRUGS USED AS SPECIFICS IN CERTAIN DISEASES

The drugs used for specific objects are not many, but cinchona in some form is a specific in malarial fever. The unnecessary number of preparations of cinchona

has already been mentioned, and the list need not again be enumerated.

While colchicum is a specific in gout, the number of its preparations should be reduced. Either the root is better than the seed or the reverse; and certainly the Pharmacopeia wants the better. One is superfluous. If the wine of the root is considered the best liquid preparation, there is no need for the extract of the root, for the tincture of the seeds, the wine of the seeds, or the fluidextract of the seeds.

Though iron is a specific in any anemic condition, it is not necessary to offer thirty-one different preparations of it in the Pharmacopeia, to say nothing of the number of preparations that are official in the National Formulary. As it takes less time to enumerate the needed iron preparations, these may be mentioned as: ferri carbonas saccharatus, massa ferri carbonatis, pilulæ ferri carbonatis, ferri hydroxidum cum magnesii oxido, ferri sulphas, ferrum reductum, tinctura ferri chloridi, and syrupus ferri iodidi. Some of the other iron preparations may be valuable, but the above give a sufficiently wide range of choice. The saccharated oxid of iron (*Eisenzucher*) should be added to the Pharmacopeia. There is no reason that any organic iron should be added, as there is nothing that can be done with iron therapeutically that cannot be done with the inorganic salts.

Mercury, the specific against syphilis, has official, besides itself, fifteen preparations. Certainly some of the ointments, the mercurial plaster and the liquor arseni et hydrargyri iodidi are not needed.

COMMENTS

While the above discussion of the drugs of the Pharmacopeia is destructive, it is not wise here to discuss the new drugs that should be made official in the next Pharmacopeia. This is a subject for the decision of the Committee on Revision.

To show the similarity of opinion on the other side of the water, viz., in Great Britain, as to the drugs which a Pharmacopeia should represent, I once more repeat the list of suggestions with which these articles were introduced, and then add the suggestions of the Therapeutic Committee of the British Medical Association for the Revision of the British Pharmacopeia.

MY SUGGESTIONS

1. Let the new Pharmacopeia contain such drugs only as are of positive therapeutic value.

2. When a drug or preparation of a drug is prescribed that is not official in the Pharmacopeia of 1910, let it be officially declared that the standard of purity and the method of making preparations not recognized in the Pharmacopeia of 1910 be the standard set and the methods of preparation ordered in the last Pharmacopeia in which the preparation was recognized.

3. Let it contain such new drugs as have been proved of therapeutic value.

4. Let there be issued a supplement to the Pharmacopeia, in 1915, which shall make official such new drugs as have been proved to be of therapeutic value during the years of 1910-1915.

5. Let the 1910 Pharmacopeia give the most simple titles possible to all new drugs, especially to the synthetic drugs. If it is considered impossible, or inadvisable, to make an official title of a drug simple, an official abbreviation should follow the name of the drug.

6. Let the 1910 Pharmacopeia give official approval to only the best of the preparations of the official Galenic drugs, and not officialize the little used and useless preparations of these drugs.

7. Let the 1910 Pharmacopeia not give official approval of all of the known salts (of iron and mercury, for instance), but officialize only the best. [The Committee on Revision can just as well decide this question as it can decide the new drugs that are worthy of a place in the United States Pharmacopeia, or as it can decide the strength a tincture shall have, and certainly the tinctures were radically changed in the 1900 U. S. Pharmacopeia, whether everyone was pleased or not.]

8. Let the average adult dose appear after each drug and each preparation of it, not the range of dose, i. e., minimum to maximum, as there is no exact under- or over-limit of dose. The dose is enough to accomplish the object aimed at by the prescriber, and all he cares to know is the average dose.

9. As the U. S. Pharmacopeia gives the official titles of drugs in Latin, it should also give the genitive after each title. This would be of special value in teaching the correct writing of prescriptions. It is not always easy to determine the declension to which a Latin noun belongs, or whether it may not be indeclinable.

10. Let the official preparations of a drug be enumerated under the title of that drug.

SUGGESTIONS OF THE THERAPEUTICS COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION[1]

1. Crude drugs which contain an active ingredient possessing all the desirable actions of the crude drug might be replaced by this active ingredient if it can be obtained commercially and its identification and purity ensured. If such an active principle is official, the crude drug might be deleted. For example, jaborandi leaves, coca leaves, elaterium and many crude drugs yielding only volatile oils might be deleted.

2. Drugs and their preparations possessing no obvious and serviceable action should be deleted, e. g., arnica rhizome, cuspari bark, hemidesmus root, lupulin, mezereon bark, serpentary rhizome.

3. Unnecessary duplication of the preparations of a drug should be avoided. Thus one 1 per cent. solution of a morphin salt, or one solid extract of belladonna, is sufficient.

4. Purely diluent preparations of a drug should be avoided, so far as possible, e. g., solutions of potassium permanganate, almond mixture.

5. Substances which do not require to be defined officially for the protection of the practitioner, or the vendor or purchaser, e. g., prunes, figs, brandy, sherry, might be omitted.

6. Substances of no therapeutic importance, which are used only in the making of preparations and are not contained in the final products, should be deleted or transferred to an appendix, e. g., benzol, solution of iron persulphate.

Favorable Influence of Intercurrent Infections on Cerebral Disorders.—A Russian writer, L. Omorokoff, recently reported in the *Obozryenie Psychiatrie*, 5, four cases of serious psychoses in which intercurrent typhoid or acute tuberculosis restored apparently normal brain conditions. Two patients were young army officers, one with catatonic stupor for four years, the other with catatonia for six months. The mind gradually became clear in each with the onset of acute tuberculosis. Another patient was an epileptic boy of 14 with several seizures daily; the seizures ceased entirely during the three months following the onset of typhoid, but they then recurred as before. The fourth patient was a young woman with a severe form of insanity, the prognosis after sixteen months seeming hopeless, but reason returned then in the course of an intercurrent typhoid and recovery followed.

1. Brit. Med. Jour., 1908, ii, 319.

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THE DISSEMINATION OF TETANUS BACILLI

Tetanus is always looked on as the best example of a purely local infection with constitutional symptoms, in that the bacteria are supposed to remain strictly localized at the point of inoculation, while the diffusible toxin produced by them acts on the remote central nervous system. Undoubtedly, tetanus is as strictly localized as any other known infection, or more so, but there is increasing reason for believing that this localization is relative and not absolute. While cultures made from the blood and internal organs at autopsies on persons dying of tetanus have almost always failed to yield the tetanus bacillus, yet experimental work with laboratory animals has furnished evidence to several investigators that tetanus bacilli or spores may be readily found in the blood and viscera of animals that have received subcutaneous inoculations, sometimes persisting two or three months after inoculation. The usual failure to find them in the circulating blood during life or in the viscera after death in human cases is undoubtedly due to the technical difficulties that so often make the isolation of this organism unsuccessful, rather than to an almost absolute localization of the tetanus bacillus in the infection wound, for enough successful cultivations have been reported to make it seem probable that man does not differ so very widely from laboratory animals in this respect.

Two recent reports speak especially strongly in favor of this view. Reinhardt and Assim[1] made cultures from four fatal cases of tetanus coming to autopsy, and in two found the tetanus bacilli in tissues remote from the infected wound. In one case they were found in the regional lymph glands, the liver, kidney, lung and heart's blood; in the other only in the liver and spleen; in all four cases many other tissues, fluids and organs were carefully examined by favorable bacteriologic methods, but *B. tetani* could not be found in them. Richardson examined the inguinal glands of two patients with tetanus from infection of the foot, the glands having been removed at operation by Porter,[2] and found the tetanus bacillus in both cases.

The authors of both these creditable reports lay much weight on this evidence of the escape of tetanus bacilli from the inoculation wound and their presence in deeper tissues. Reinhardt and Assim believe that such migrated bacteria or their spores may remain latent for a long time, and give rise either to symptoms after the local injury has healed, explaining some cases of remarkably long incubation period; or they may become active under favorable conditions of lowered resistance or of trauma, and cause otherwise inexplicable cases of "idiopathic" or chronic tetanus. Porter and Richardson suggest that it may be desirable to remove the regional lymph glands when treating tetanus-infected wounds, since the bacilli are present in the glands as well as in the wounds. It should, therefore, be emphasized that the mere finding of tetanus bacilli in lymph glands and viscera does not signify much until we know whether these migrated germs were multiplying in the places where they were found, or were merely stragglers carried away by lymph or leucocytes, which happened to be isolated by the bacteriologist before they were destroyed by the tissues in which they had lodged.

The few successful inoculations obtained by Reinhardt and Assim, despite the extensive search and favorable technic, do not speak in favor of any multiplication of the transplanted bacteria having taken place. For this reason there should be experimental evidence in support of the procedure before the routine practice of removal of the regional glands in tetanus infection can be recommended. It is a well-established fact that injury to the tissues, and particularly the presence of blood clots, favors the multiplication of tetanus bacilli, and therefore by removing lymph glands which contain a few bacilli that could be destroyed by the intact glands we might establish conditions that would permit the few bacilli escaping us to take on vigorous growth. Before taking this additional step in the treatment of tetanus we need to know that the bacilli in the glands will do harm if left there, and, if so, that our efforts to remove them will not favor the bacilli rather than the host.

1. Centralbl. f. Bakteriol., Abteil. 1, Orig., 1909, xlix, 582.
2. Boston Med. and Surg. Jour., Dec. 23, 1909, clxi, 927.

A NEW SPUTUM TEST FOR DISTINGUISHING BRONCHIAL FROM PULMONARY DISEASE

Within the last century the diagnosis of diseases of the lungs and bronchi has been revolutionized. The first and greatest advance resulted from the work of the two pioneers, Auenbrugger and Laennec. A tremendous stimulus to study of intrathoracic diseases was the ultimate result of their work, and in time the foundation laid by these two physicians was enlarged and their methods popularized by others, giving us the refined methods of physical examination which we have to-day. The second great advance toward more exact diagnosis came with the careful systematic examination of sputum, both macroscopic and (more especially) microscopic, to which impetus was given by Koch's discovery of the tubercle bacillus. Various other discoveries, tending to greater precision in diagnosis, such as the recognition of the *Bacillus influenzæ* of Pfeiffer, the tuberculin reaction, Roentgen ray and the finding of the *Paragonimus*

westermanii in the sputum in pulmonary distomiasis, have constituted important advances.

The newest of the methods for differential diagnosis of pulmonary and bronchial affections is that of Falk and Tedesko.[1] The test is based on the fact that salicylic acid and its salts may be found, after administration by the mouth, in any of the serous fluids (pleural, peritoneal, bursal, etc.) and, pathologically, in inflammatory exudates; but it is not found in glandular secretions, such as the saliva, or in the secretion of the bronchial mucosa. If found in the sputum it is believed to be evidence of involvement of the lung substance itself.

The salicylate is detected in the sputum by the addition of ferric chlorid, which produces a violet color. Certain substances always present in the sputum, however, interfere with the direct testing of the sputum. It is necessary to make the test by extracting with a volatile solvent, evaporating and testing the residue with ferric chlorid for salicylic acid.

No trace of salicylic acid could be found in the sputum in diseases limited to the bronchi; i. e., acute catarrhal bronchitis, the chronic bronchitis of pulmonary emphysema, bronchial asthma, purulent bronchitis, bronchiectasis, or the stasis-catarrh of cardiac disease. In lobar pneumonia, on the other hand, the salicylate appeared in the sputum in excessive quantities. In one case of central pneumonia (proved by autopsy), without physical signs, there was a strong positive reaction, while in another with bilateral pneumonic gangrene there was an intense reaction. Variable results were obtained in tuberculosis; in all cases a positive reaction was obtained, but its intensity did not run parallel with the clinical findings. In general, the authors found that the acute cases gave a more striking reaction than those of long duration.

From their studies, Falk and Tedesko believe that a negative reaction, when obtained repeatedly, is strong evidence that a disease process in the lungs is limited to the bronchi. A very strong positive reaction indicates an extensive inflammatory (exudative) process in the lung. In doubtful cases, in which the diagnosis lies between bronchitis and tuberculosis, a positive reaction indicates pulmonary involvement (tuberculosis). Furthermore, cases of central pneumonia, unrecognizable by physical signs, should be strongly suspected in the presence of a marked positive reaction.

PAUL EHRLICH

The progress of medicine, like that of other sciences, depends on the leaders, of whom there are two classes. To the one class belong those to whom the slow, steady and safe advances are due. These leaders are identified with established lines of research or practice and stand in the front rank of their profession, from the best elements of which they are not separated by a conspicuous gap. Their number is not small, and they usually hold the first positions in the gift of the profession, while they are, as a rule, the distinguished pupils of masters of their own type.

To the other class, however, belong those who precipitate, as it were, long-suspended and hitherto unperceived elements of knowledge, so that orderly truth seems to crystallize in the twinkling of an eye out of what appeared hitherto but a baffling jumble of facts. Men of this class are not born in every generation; in none are they numerous. Theirs are the master-minds; as a rule they have been, in the strict sense, nobody's pupils. It seldom or never happens that the first class of leaders remain unappreciated by their contemporaries; but not infrequently the second class of leaders find no followers in their own day and generation.

To the happy circumstance of the rise in rapid succession—and in part concomitantly—of several master-minds are the great advances in medicine of the present period due. The impulse of the genius of Pasteur, Koch, Metchnikoff and of Paul Ehrlich, has transformed medical science and practice and produced the most brilliant chapter in medical history. It is eminently true of all these men that they were no man's followers or pupils, and that their creations did not at once assimilate with the existing branches of medicine; neither were they or their teachings at first acceptable to those who were then leaders of medicine; but, none the less, medicine to-day bears the unmistakable impress of their work.

The four men present individual types. Koch is a monumental figure, and his contributions to medicine insure him the first rank in the history of medicine. Yet he belongs to that group of great minds who use up their great mental gifts within a brief period of time. His epochal work, indeed, hardly exceeds one decade. Metchnikoff's lasting contribution, on which his high eminence rests, is the theory of phagocytosis, which he has developed into a comprehensive doctrine. Pasteur's genius is less definable in a brief statement and was not only much broader in scope, of far more enduring metal, but also of fundamental basic quality; on it rests the entire superstructure of modern bacteriology in its broadest biologic sense.

Paul Ehrlich presents a phenomenon of still different type. He graduated in medicine in 1878 and within a year his epochal studies on blood corpuscles began to appear. In rapid succession the foundations were laid for a magnificent edifice in medicine, in which scores of investigators have found a permanent home. Not so Ehrlich. He has laid other and not less important foundations since then; and within a year—and thirty years after his first attainments—he has electrified the world by brilliant contributions to the science of experimental therapeutics.

To what branch of medicine does Ehrlich belong? Is it to immunity, or hematology, the therapeutics of the

1. Falk and Tedesko: Neue Untersuchungen zur Sputumdiagnose, Wien. klin. Wchnschr., 1909, xxii, 954; abstr. in THE JOURNAL, August 21, p. 662.

protozoa, or the investigations of malignant neoplasm? The comprehensiveness of his genius is exhibited by the many chapters in modern medicine in which his has been the master-hand to shape the form and furnish the content. Ehrlich was, from the first, nobody's pupil. His life-long interest in colors may have begun in his student days in Breslau, where his cousin, the celebrated and genial Weigert, then assistant to Cohnheim, was working on the staining methods which he later introduced into pathologic histology. But Weigert would have been the last person to claim mastership over Ehrlich. Even less does Ehrlich's work bear the marks of influence of Frerichs and Gerhardt, under whom he was clinical assistant. Ehrlich has never published anything that was a mere repetition of work done by others. Either he began with a new problem, or he made an old one new by giving it a fresh and original form. Ehrlich introduced new technical principles and made contributions to morphology and yet, apparently, he was never deeply interested either in the technical or morphologic aspects of his subjects. His interests centered in the functional aspects of his problems and in their more general connotations. Although he introduced the technical method of the differential blood-count into medicine, yet it was less the distinctions among the white cells than the classifications of the stains according to their chemical affinities and the functional significance of the cell-granules that interested him chiefly. Blood, dyes, chemical affinities are the elements that appear again and again in the course of Ehrlich's many investigations.

Thus his fundamental work on blood corpuscles was followed (1880-81) by an investigation of toxic hemoglobinuria and the discovery of a method of studying the condition in living human blood. He now brought forward methylene blue as a means of studying bacteria, and soon after Koch announced the discovery of the tubercle bacillus (1882) Ehrlich invented a more perfect method of staining that organism and formulated the theory of the penetration of stains through bacterial membranes. His interest in dyes next led him to the discovery of the diazo reaction and to highly important studies on ocular fluorescence through the use of the mother substance of eosin. Next followed the remarkable series of studies (1884-85), by means of methylene blue, on the oxidations and reductions in the tissues, which were brought together in his fundamental work, "Das Sauerstoff-Bedürfniss des Organismus," and on the vital staining of nerves. The dawning of the ideas, later to be so rich in results, relating to receptors in cells and the unequal distribution of toxic and therapeutic substances in the body, came with these studies. The next period (1886-90) was one of less outward activity, but manifested an interest in therapeutics, since it was associated with Ehrlich's work on detoxication by sulpho-radicals, the alleviation of pain by means of methylene blue, and with studies on the cocain group, etc.

Ehrlich's connection with the Berlin Institute for Infectious Diseases (1891) gave a new impetus and direction to his work. The fundamental studies on antitoxic immunity with ricin and abrin were not only the first product of the new activity, but they led him into paths which he has not yet forsaken. It is of interest to conjecture how deeply these early studies on antitoxic immunity cut along the path through which diphtheria antitoxin was somewhat later to be sent into the world. This was also the period of Ehrlich's first incursions into the specific treatment of protozoal disease, for he introduced (with Guttmann) methylene blue in the treatment of malaria. Diphtheria antitoxin having been produced and found valuable, Ehrlich was chosen by the Prussian government to work out a method of standardization, the high importance of which choice cannot well be overestimated; for it was the uncovering of the complications of the structure of the antitoxins that led to the theoretical considerations regarding their compound nature and to the development of the side-chain theory of immunity (1897). This prolific theory was greatly extended in the next years through the studies on hemolysins which appeared from him and his associates. It is no matter what opinion one may entertain of the ultimate fate of the theory, since friend and foe alike will admit that in point of fruitfulness it stands unrivalled in all medical history.

The genius of Ehrlich is exhibited not only in his choice of subjects of investigation and the success with which, like a skilful conjurer, he helps himself with ingenious hypothesis, but, almost to an equal degree, by the instinct for leaving a field which is becoming barren. Hardly any one has lost so little time and energy in unprofitable byways of research and discussion. When the harvest has been reaped, he has always left the field to be gleaned by scores of lesser men. In 1904 Ehrlich took up the study of the experimental therapeutics of trypanosome disease which represents a revival of interest in dyes and at the psychologically and chemically propitious moment. For the discoveries in parasitic protozoology, on the one hand, gave a deep practical significance to the work, as the advanced chemistry of colors and of the organic arsenical compounds provided a basis for a wide scale of therapeutic experimentation. Ehrlich's success in this field has been as great as in any other he has trodden. Within the last period Ehrlich entered the arena of the investigations of malignant neoplasm, which center about the transplantable tumors of mice and rats, and here again he became the leader in the field. This last period is still the active one for him and the end of his endeavors has not yet come to view.

The value of Ehrlich's work has long been recognized and it is gratifying to learn that this recognition is taking a substantial form. Elsewhere in this issue is recorded the fact that the board of directors of the Rockefeller Institute for Medical Research has placed at the disposal of Professor Ehrlich $10,000 to further his investigations into the chemical therapy of the proto-

zoon diseases. Paul Ehrlich is still comparatively a young man, not yet 56 years old. There is, therefore, good reason to hope that medical science and practice will owe him a greater and deeper debt than the large one already due him before he retires covered with honors from the field of his chosen work.

FLEXNER'S DENIAL OF ANTIVIVISECTION CANARDS

Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, has replied through the columns of the New York *Times* to the sensational articles recently published in the New York *Herald*, alleging that needless and uncalled for cruelties were inflicted on animals in the institute. To those who have followed the admirable work of the Rockefeller Institute, no vindication is necessary. The absurdity of supposing that men of the highest scientific attainments, recognized for their learning and culture both in this country and Europe, would devote weeks of time and would derive insane enjoyment from the needless torturing of animals, as was practically charged, is apparent to every one except the hopeless fanatic or the well-meaning but undiscriminating sentimentalist, who is not mentally capable of being guided by either common sense or ordinary evidence. Dr. Flexner's statement is given in full in General News and Comment in this issue. It is so conclusive and convincing as to require no further comment and so moderate and rational as to need no corroboration.

Evidently the efforts of the antivivisectionists are to be centered on New York in the hope of securing the passage of some kind of restrictive legislation in that state which can be pointed to as a precedent. It is not so strange that ignorant scrubwomen should set themselves up as authorities on scientific work as that misguided fanatics are willing to give credence to their garbled and indiscriminating statements. The most painful fact, however, is that great city newspapers, in order to be able to spread sensational headlines on front pages, will mislead the public by traducing an institution which is doing a splendid work, solely for the public good. At the time that Mr. Rockefeller established the hookworm commission the newspapers emphasized as one of his characteristics that he always carefully investigated any proposed scientific or philanthropic organization or purpose before he gave his money to it and that he never contributed to any object unless it could be shown that results commensurate with the expenditure could be secured. Is it possible that Mr. Rockefeller is contributing millions to support an institution in which brutal scientists and insane surgeons amuse themselves by inflicting needless pain on helpless animals? Such a conception of his shrewdness is not in line with popular ideas on this subject. Mr. Rockefeller knows that Simon Flexner and his colaborers have reduced the mortality in cerebrospinal meningitis —that scourge of the infant world—from 75 per cent. to 25 per cent, and perhaps Mr. Rockefeller considers that an institution that saves fifty baby lives out of a hundred is a good investment, no matter what it costs. Perhaps the mothers of the babies think so, too. But the New York *Herald* is willing to take the word of a scrubwoman that the Rockefeller Institute exists in order to gratify the brutal and inhuman instincts of men who are striving to save babies from death.

It is almost unbelievable that any newspaper would so far sacrifice its reputation to a desire for sensationalism as to print such a story as that which appeared in the New York *Herald*, December 27.

Medical News

ARKANSAS

Contract for Sanatorium Awarded.—The contract for the erection of the buildings of the Arkansas Tuberculosis Sanatorium, Booneville, have been awarded to an Ozark contractor for $26,564. The contract provides for the erection of an administration building, one ward room for 24 patients, two cottages each accommodating 8 patients, four cabins, two eight-room cottages, and five tent houses.

Society Meetings.—At the annual meeting of Sebastian County Medical Society in Fort Smith, Dr. Dred R. Dorente was elected president; Dr. J. Homer Buckley, vice-president; Dr. Clark S. Wood, secretary, and Dr. Charles W. Garrison, treasurer, all of Fort Smith.——Greene County Medical Association, at its meeting in Paragould, January 10, elected the following officers: Dr. Paul L. Dickson, Paragould, president; Drs. George T. Hopkins, Paragould, and Jones H. Lamb, Beech Grove, vice-presidents; Dr. Olive A. Charles Wilson, Paragould, secretary-treasurer, and Drs. Robert J. Haley, Felix M. Scott, and James G. MacKenzie, all of Paragould, censors.

CALIFORNIA

High License in Chico.—The city trustees of Chico have adopted an ordinance imposing a license of $100 per day on itinerant practitioners, with a penalty for violation of the ordinance of a fine of not less than $250 or imprisonment for not more than 90 days or both.

Arberry Sentenced.—Dr. John J. Arberry, San Francisco, whose trial and conviction for obtaining money under false pretenses was noted in THE JOURNAL, January 29, page 388, is said to have been sentenced to two years in the state penitentiary, San Quentin, January 21. A ten days' stay of execution was secured.

Refuse to Pay Local License.—Drs. Frank C. Newton, Daniel E. Osborn and J. A. O'Connor, St. Helena, are said to have been found guilty of violating the town ordinance by refusing to pay a license of $3 per quarter. The attorney for the defendants has applied for a writ of prohibition, claiming that the ordinance is unconstitutional.

GEORGIA

Society Meetings.—At the annual meeting of the Georgia Medical Society, held in Savannah January 11, the following officers were elected: Dr. Thomas J. Charlton, president; Dr. Joseph G. Jarrell, vice-president; Dr. John M. Sigman, secretary; Dr. Ralph M. Thomson, treasurer; Dr. John L. Farmer, censor, and Drs. Henry H. Martin and Thomas P. Waring, delegates to the state society, all of Savannah.——At the annual meeting of Fulton County Medical Society, held in Atlanta, Dr. J. Ross Simpson was elected president; Dr. Edgar G. Ballenger, vice-president; Dr. Richard R. Daly, secretary; Dr. Arnold H. Lindorme, treasurer, and Dr. Stephen T. Barnett, censor, all of Atlanta.——At the annual meeting of Richmond County Medical Society, held in Augusta January 5, the following officers were elected: President, Dr. William R. Houston; vice-president, Dr. James R. Littleton; secretary, Dr. George A. Traylor; censors, Drs. John C. Wright and Moses S. Levy; delegate to the state association, Dr. Noel M. Moore, and alternate, Dr. Albert A. Davidson, all of Augusta.

ILLINOIS

Physicians' Club Meet.—At the annual meeting of the Lincoln Physicians' Club, held January 13, the following officers were elected: President, Dr. William W. Houser; vice-president, Dr. Calvin C. Montgomery; secretary-treasurer, Dr. Harry S. Oyler, and trustees, Drs. Carl H. E. E. Rembe, Frank M. Hagans, and Lewis T. Rhoades.

Hospital Elects Officers.—The board of trustees of the Passavant Hospital, Jacksonville, at its annual meeting, January 18, elected the following officers: President, J. P. Loar; vice-president, S. W. Nichols; secretary, Dr. Carl E. Black; treasurer, F. E. Farrell; members of executive committee, Dr. Thomas J. Pitner and J. G. Ames, and medical trustee, Dr. Elmer L. Crouch.

Personal.—Dr. Samuel M. Wylie, Paxton, who was operated on for carbuncle at the Henrotin Memorial Hospital, Chicago, January 8, has returned home.——Dr. J. S. Alexander, Waverly, fell on the ice January 18, breaking his right hip.——Dr. Hugh K. Schussler sailed for Europe January 20.——Dr. P. S. Wiedman, Edwardsville, fell January 20, and sustained severe contusions.

Chicago

Fight Against Tuberculosis.—Under the head "Fighting Tuberculosis," the health department, in its current bulletin, details the methods and agencies employed in the local control of that disease.

Clairvoyant Fined.—Mrs. Ella Seibert, a fortune teller and clairvoyant, is said to have been convicted by a jury, January 18, of practicing medicine without a license, and to have been fined $100 and costs. The fine was paid.

Money for Charity.—By the will of Mrs. Francis E. Curtis, $30,000 is devised to the Presbyterian Hospital.——As the proceeds of a comedy presented at Sinai Temple under the auspices of Baron Hirsch Woman's Club, $1,200 was netted for the Winfield Sanatorium.

KENTUCKY

Personal.—Dr. Robert L. Bone, Madisonville, is reported to be critically ill with septicemia following an operation on the nose, performed in Baltimore during the Christmas holidays.——Dr. Frederick A. Stine has been elected president of the Newport Board of Health.

Society Meetings.—The Medical Society of Warren County held a jubilee meeting and banquet January 12 in Bowling Green in honor of the oldest practitioners of the county. The following officers were elected: President, Dr. Frederick D. Cartwright, Bowling Green; vice-presidents, Drs. James W. Lewis, Oakland, and John H. Blackburn, Bowling Green; secretary-treasurer, Dr. Lillian H. South, Bowling Green.——McCracken County Medical Association, at its annual meeting in Paducah, elected Dr. Henry P. Sights president; Dr. Henry G. Reynolds, vice-president; Dr. Delia Caldwell, secretary; Dr. William J. Bass, treasurer, and Dr. Horace T. Rivers, censor, all of Paducah.

MARYLAND

Separate Hospital for Advanced Phthisis.—A proposition is now made that advanced cases of consumption shall be treated in a separate hospital, leaving Eudowood and Sabillasville for incipient cases.

Personal.—Dr. Clarence E. Collins, Crisfield, slipped and fell on the ice January 12, breaking his left arm, cutting his face, and rendering him unconscious.——Dr. Henry W. McComas, Oakland, is said to have been removed from the position of registrar of vital statistics of Garrett county, because of the failure of the state board to obtain satisfactory records.

Unification of State Colleges.—Senator Linthicum's bill to unite all the leading colleges and universities in the state under one governing body, a board of regents, is to be discussed by a special committee appointed January 21. On this committee are representatives of the Western Maryland College, St. John's College, University of Maryland, Washington College, Baltimore Medical College, College of Physicians and Surgeons, and Maryland Medical College.

Faculty Approves Compromise Bill.—The Medical and Chirurgical Faculty of Maryland has given its approval to the compromise pure food bill, the final draft of which contains "those features considered vital to make it an operative law, justly and honestly administered." The bill does not correspond entirely to the views of the society, but the differences are not sufficiently great to jeopardize the passage of an effective law, by having two bills before the legislature. The greatest danger is in the form of amendments while the bill is in passage. Notice has been given that any such efforts to destroy or seriously injure its usefulness will be met by the introduction of the original bill approved by the society which the profession and public will be urged to cause to be enacted.

Baltimore

Appropriations Reduced.—Following the recommendations of the governor, the Board of State Aid and Charities, in its report recommends a reduction of $593,300 in the appropriations to the state institutions, hospitals, reformatories, etc., as compared with the appropriation made by the last legislature. The amount recommended by the board is $1,585,100 less than that applied for by the institutions.

New Hospital.—The charter for the new South Baltimore Hospital was signed January 18. The hospital is to contain 100 beds and to cost about $100,000. It will include, it is said, the Good Samaritan Hospital, the South Baltimore Eye, Ear and Throat Hospital, and the Woman's Evening Dispensary. The directors of the institution include the mayor, Drs. James Bordley, Jr., Harry E. Peterman, Anna S. Abercrombie, Lillian Welsh, Guy L. Hunner, and John D. Blake.

MASSACHUSETTS

Estate Given to Psychologists.—Mrs. Martha S. Jones, of Portsmouth, N. H., has made clear her faith in the practicability of the modern specialized method of psychologic treatment, by giving her estate at Echo Park to Prof. Boris Sidis of Harvard University.

Personal.—Dr. Thomas F. Rearden has been reelected a member of the board of health of Springfield.——Dr. Edwin P. Seaver has been appointed physician to the overseer of the city poor, New Bedford, vice Dr. Clarence E. Burt, resigned.——Dr. Oliva G. Duhamel has been elected city physician of Marlboro.——Dr. Charles J. Ferguson has been elected fleet surgeon of the South Boston Yacht Club.——Dr. John J. Martin has been appointed school physician of Beverly.——Drs. Frank A. Conlon, Carl L. Moeckel, John H. Bannon, Myer Schwartz and Watkins R. O'Conner have been elected school physicians by the Lawrence Board of Health.——Dr. George B. Fenwick has been appointed a health commissioner of Chelsea, vice Dr. Edward S. Johnson, resigned.

MICHIGAN

Personal.—Dr. Charles B. Norden, Bad Axe, who was operated on for appendicitis at Hubbard Memorial Hospital, December 18, has entirely recovered and resumed practice.——Dr. Christian Schneider, Cross Village, has been taken to the Petoskey Hospital for a surgical operation.——Dr. Herman Ostrander, Kalamazoo, has been appointed assistant superintendent of the Michigan Hospital for the Insane.——Dr. John W. Whiteside has been placed in charge of the Oliver Iron Mining Company's Union Hospital, Ironwood.

Work Against Tuberculosis.—The Kalamazoo Antituberculosis Association, at its annual meeting January 14, reported that during the year 14 patients had been cared for, three had been cured, and two had been materially improved, and all benefited. Dr. Herman Ostrander was reelected president, Dr. David J. Levy was elected vice-president, Dr. John B. Jackson secretary, and Dr. S. Randolph Light treasurer.——At the annual meeting of the Michigan State Association for the Prevention and Relief of Tuberculosis, held in Ann Arbor, Dr. Victor C. Vaughan, Ann Arbor, was elected president; Drs. Guy L. Kiefer, Detroit, and Edward T. Abrams, Dollar Bay, vice-presidents; Dr. Alfred S. Warthin, Ann Arbor, secretary; Dr. Henry J. Hartz, Detroit, treasurer, and Drs. Guy Kiefer, Detroit, Collins H. Johnston, Grand Rapids, Emil H. Webster, Sault Ste. Marie, Edward T. Abrams, Dollar Bay, Robert B. Harkness, Houghton, Frank W. Shumway, Lansing, and Alfred S. Warthin, Ann Arbor, directors, and Dr. Charles G. Jennings and Guy L. Kiefer, Detroit, and Frank W. Shumway, Lansing, members of the executive committee. The association has filed articles of incorporation.——The Coldwater Antituberculosis Association has been organized with Drs. William H. Baldwin and Samuel Schultz as members of the board of trustees.——The annual report of the State Tuberculosis Sanatorium, Howell, for the fiscal year ended June 30, shows that at the beginning of the year there were 34 patients in the institution. During the year 103 were discharged and at the end of the year there were 44 patients in the sanatorium. Twenty patients were discharged apparently cured, 27 were so improved that they were able to leave, and only two deaths were recorded. A temporary infirmary with a capacity of 8 beds has been erected, and it is hoped that a permanent structure may be erected in the near future.

MINNESOTA

Medical Building Burned.—The medical building at the University of Minnesota was destroyed by fire December 24, with a loss of about $75,000.

Personal.—The governor has announced the following appointments on state boards: State Board of Medical Examiners, Drs. F. B. Hicks, Grand Marais; John W. Andrews, Mankato, and Charles Bolsta, Ortonville; and Advisory Commission, State Sanatorium for Consumptives, Dr. George F. Roberts, Minneapolis (reappointed).——Dr. Jacob H. Heimark, Gary, has been appointed physician of Norman county. ——Dr. Evans E. Brubaker, Northfield, is reported to be seriously ill.——Dr. DeWitt C. Jones, St. Paul, has succeeded Dr. Arthur W. Miller as coroner of Ramsey county, and Dr. Edmund Stevens has been appointed chief deputy.——Dr. Thomas N. McLean, Fergus Falls, is ill with cholelithiasis, and will probably undergo operation in New York or in Rochester, Minn.——Dr. Kurt, Albert Lea, sustained the total loss of his office furniture and fixtures by fire recently.—— Dr. and Mrs. Pierre A. Hilbert, Melrose, and Dr. George H. Freeman, St. Peter, have gone to Europe.

MISSOURI

Personal.—Dr. Horace D. Quigg, Blackwater, has succeeded Dr. Charles B. Simcoe as superintendent of the Missouri Colony for Feeble-Minded and Epileptics, Marshall.——Dr. Kearan C. Cummins, Maryville, who was seriously injured several weeks ago by falling from the roof of his porch, is convalescent.——Dr. J. Park Neal has resigned as assistant superintendent of the General Hospital, Kansas City.

State Board Election.—The State Board of Health, at its annual session in Jefferson City, January 10 to 12, elected the following officers: President, Dr. Ira W. Upshaw, St. Louis; vice-president, Dr. Ernest F. Robinson, Kansas City; and secretary, Dr. Frank B. Hiller, Kahoka (reelected). The board has appointed 900 registrars in the counties of the state to obtain statistics on births and deaths under the law enacted by the last general assembly. The board has also decided to move the office of state bacteriologist to Jefferson City, and to equip a laboratory there in connection with that of the State Board of Health.

Medical Library Open to Profession.—The University of Missouri medical library has been made a free circulating library, open to the physicians of the state. Any reputable physician of the state may borrow a book from the library for a period of two weeks with an extension of two weeks, the only expense to the borrower being the postage or express charges. A brief catalogue of the number of works in the medical library is soon to be published and will be mailed on application. For information regarding the library, address Mr. H. O. Severance, librarian, or Dr. Clarence M. Jackson, dean of the University of Missouri, Columbia.

St. Louis

Purchase Site for Medical Building.—Washington University has acquired 100 feet of ground on the east side of King's Highway for $9,000. The property is eventually to be utilized for a medical school building.

Against Tuberculosis.—At the Columbian Club, $93,000 was subscribed in less than two hours by members of the Jewish Educational and Charitable Union to erect an orphan's home for Jewish children and a home for incurable consumptives. ——Francis H. Peters has donated $1,000 toward the erection of a tuberculosis sanatorium in memory of his son.

Personal.—Dr. Joseph Grindon has been chosen a corresponding member of the French Society of Dermatology and Syphiligraphy.——Dr. Morris C. Tuholske has been elected secretary of the Society for the Relief and Prevention of Tuberculosis. ——Dennis E. Kimbrough, a senior student of the St. Louis College of Physicians and Surgeons, died at his home January 24, from septicemia following an attack of tonsillitis.

Faculty Appointments.—The following appointments have been made by the faculty of the St. Louis University School of Medicine: Dr. Guthrie McConnell, assistant professor of pathology; Dr. Jules M. Brady assistant professor of diseases of children; Dr. Orville H. Brown, assistant professor of physiology; Dr. Rudolph Buhman, assistant in surgical pathology; and Drs. Llewellyn Sale and Heber B. DePew, assistants in medicine.

NEBRASKA

Meat Inspection Ordinance Passed.—The city council of Omaha has passed the ordinance approved by the Omaha-Douglas County Medical Society, requiring all meat sold in the city of Omaha to be properly tagged showing that it has been examined by government inspection or by a regularly appointed veterinarian and meat inspector of the city of Omaha.

Society Meetings.—The annual meeting of the Omaha-Douglas County Medical Society was held in Omaha January 11. A resolution was adopted by the society endorsing the local ordinance for meat inspection and asking the mayor and city council to pass the ordinance. A loving cup was presented to Dr. Richard C. Moore, dean of the medical profession in Omaha, as a token of esteem and in honor of his forty-five continuous years of practice in the city. Dr. Joseph M. Aikin was elected president; Dr. Charles Rosewater, vice-president; Dr. Robert R. Hollister, secretary, and Dr. Millard Langfeld, treasurer, and Dr. John P. Lord, censor, all of Omaha.——Johnson County Medical Society, at its annual meeting, held in Tecumseh, January 20, elected Dr. Sullivan Howard, Elk Creek, president; Dr. John W. Archerd, Cook, vice-president; Dr. Albert P. Fitzsimmons, Tecumseh, secretary-treasurer and delegate to the state society, and Dr. James W. Turner, Sterling, censor.——At the annual meeting of Adams County Medical Society, held in Ingleside, January 11, Dr. James V. Beghtol, Hastings, was elected president; Dr Mark W. Baxter, Ingleside, vice-president and censor; and Dr. Edward A. Weir, Hastings, secretary-treasurer.—— Gage County Medical Society, at its annual meeting, held in Beatrice January 11, elected Dr. Charles S. Curry president; Dr. C. A. Bradley, vice-president, and Dr. John I. McGirr, secretary-treasurer, all of Beatrice.

NEW MEXICO

Win Malpractice Suit.—In the case of Drs. David H. Galloway and Howard Crutcher, Roswell, and Charles M. Murrell, Alida, charged with malpractice by Jesse P. Kelley, the court has decided in favor of the defendants.

Personal.—Dr. James A. Massie has been elected president of the Santa Fe Commercial Club.——Dr. William R. Saltzgaber has been appointed manager and resident physician of the Alamagordo Sanatorium.——Dr. Thomas B. Hart, Raton, fell into an open cellarway recently, spraining his ankle and sustaining painful injuries.——Dr. William J. Hammer, medical director of St. Joseph's Sanatorium for Tuberculosis, Silver City, has gone to Europe.

NEW YORK

New Hospital for Queens.—The Little Sisters of the Poor have filed plans for a new hospital to be located in Woodhaven and to be known as St. Anthony's General Hospital. The building is to cost $500,000.

State Medical Society Election.—At the one hundred and fourth annual meeting of the Medical Society of the State of New York, held in Albany, January 25 and 26, it was decided that the meeting for 1911 should be held in Albany. The following officers were elected: President, Dr. Charles Jewett, Brooklyn; vice-presidents, Drs. Charles Stover, Amsterdam; Joseph W. Grosvenor, Buffalo; and Charles W. Brown, Elmira; secretary, Dr. Wisner R. Townsend, New York City (reelected), and treasurer, Dr. Alexander Lambert, New York City (reelected).

New York City

Columbia Will Accept Women Students.—At the summer session of Columbia University women will be admitted to the courses in law and medicine. They will not obtain degrees, however, unless they have been accepted as students in the Law School or in the College of Physicians and Surgeons. It is not believed that the authorities contemplate a revision of the rules governing these departments. The College of Physicians and Surgeons will offer five new courses this year, namely, pathology, bacteriology, medical diagnosis, physiological chemistry and pathological nutrition.

Personal.—Dr. James J. Walsh has returned from New Orleans, where he lectured before the nurses about old hospitals; before the Orleans Parish Medical Society on "Old Superstitions in Medicine and New Ones," and before the Medical Department of Tulane University on "Some Landmarks in Six Thousand Years of Medicine."——Dr. J. Bergen Ogden has been appointed assistant medical director of the Metropolitan Life Insurance Company.——Dr. Joseph H. Byrne has succeeded Dr. Peter Hughes as medical officer of the finance department of Brooklyn.——Dr. Everett C. Brennand, Brooklyn, sustained a dislocation of the shoulder in a fall on the ice, January 5.

Health Board in Food Fight.—As a result of the agitation concerning meat prices, Health Commissioner Ernest J. Lederle has ordered an immediate investigation of all the cold storage plants in the city. Hitherto the department has only con-

cerned itself with watching meat after it reached the retailers, but instances have come to light where food has been unfit to eat within forty-eight hours from the time it was taken from cold storage.——Two bills have been sent to the legislature, one prohibiting the sale of produce that has been kept in cold storage for more than thirty days and one providing for the inspection of cold storage warehouses in New York City by the Board of Health.

Disease in the Schools.—Physicians of the Board of Health have completed the examination of 323,344 school children, about half the number in the public schools of the city and find that less than one-fourth have no physical defects. It is taken for granted that the percentage of defective children among those that have not been examined is about the same. Among those examined it was found that 242,048 were in need of medical or surgical attention. There were 56,620 cases of trachoma, 3,850 pupils were excluded because of the contagious diseases of childhood, 38,329 children were suffering from defects of vision, 73,058 from defects of nasal breathing, 3,471 from defects of hearing, and 183,869 from defective teeth. The physicians found 145,066 cases of pediculosis. The children suffering from malnutrition numbered 11,749, and those suffering from anemia numbered 2,408.

OHIO

Rockefeller Aids Dispensary.—Dr. John D. Rockefeller has agreed to build a hospital to cost $25,000 for the Women's and Children's Medical and Surgical Dispensary, Cleveland, a charitable dispensary which has been maintained by the women physicians of the city for thirty years, on the condition that $25,000 is raised as an endowment fund.

State Board Election.—Dr. Sylvester M. Sherman, Columbus, has been elected president of the State Board of Health, vice Dr. Augustus Ravogli, Cincinnati; Dr. Edward J. Wilson, Columbus, vice-president and treasurer, and Dr. George H. Matson, Columbus, secretary (reelected). John W. Hill, stationary engineer, Cincinnati, has been appointed a member of the State Board of Health, vice Dr. Byron Stanton, Cincinnati, term expired.

Personal.—Dr. Mark Millikin has been reelected health officer of Hamilton.——Dr. Guy T. Goodman has been appointed a member of the board of health of Mansfield, and Dr. Maxwell J. Davis has been reelected health officer.——Dr. Martin Friedrich has been reappointed health officer and Dr. Clyde E. Ford, health superintendent of Cleveland.——Dr. Leroy C. Eberhard has been made president pro tem of the board of health of Akron.——Drs. Herbert C. Haning and James E. Welliver have been appointed members of the board of health of Dayton.——Dr. Dana O. Weeks has been elected president pro tem of the Marion Board of Health.——Drs. Herman S. Rhu, Cary T. Wiant, and A. Melville Crane have been appointed members of the health board of Marion.——Dr. Charles A. Poindexter, Middleport, has been made local surgeon for the K. and M. Railroad.——Dr. Sterling B. Taylor, health officer of Columbus, has resigned.——Dr. Leo S. Talaska has been appointed physician to the Toledo Isolation Hospital.

Cincinnati

Neumann in Cincinnati.—Dr. Henrik A. Neumann, professor of diseases of the ear in the University of Vienna, was a guest of Dr. Christian R. Holmes during his stay in that city. On January 13, Professor Neumann was the guest of Dr. Allen B. Thrasher at a dinner at the Queen City Club, and on January 23, Dr. Holmes gave a buffet supper at his home in Avondale in honor of Professor Neumann.

Personal.—Dr. Nathaniel P. Dandridge, after a service of 38 years, has resigned his position as surgeon to the Cincinnati Hospital and Dr. Horace J. Whitacre has been appointed to fill the vacancy.——Dr. Christian R. Holmes has resigned as one of the medical directors of the City Hospital to accept the appointment as a member of the commission to build the new city hospital and has been succeeded by Dr. N. P. Dandridge. Dr. Horace J. Whitacre has been transferred from the south surgical service of the City Hospital to fill the vacancy made by the resignation of Dr. Dandridge; Dr. Charles E. Caldwell has been transferred from the department of orthopedic surgery to the south surgical service; Dr. Robert Carothers has been promoted from junior to senior in charge of the orthopedic service; Dr. J. Louis Ransohoff, at present cystoscopist, has been made junior on the orthopedic service; Dr. Jesse Wyler, junior oculist; Dr. Samuel Iglauer, junior laryngologist; Dr. Gustave A. Hinnen, junior otologist; and Dr. William R. Abbott, assistant resident pathologist.

PENNSYLVANIA

Elections.—The Slate Belt Medical Society, at its annual meeting, held in Pen Argyl, elected the following officers: President, Dr. Benjamin F. Dilliard, East Bangor; vice-president, Dr. Irwin N. Johnson, Pen Argyl; recording secretary, Dr. Clinton F. Stoffiet, Pen Argyl, and treasurer, Dr. David H. Keller, Bangor.——The Columbia College of Physicians and Surgeons, at its annual meeting, January 19, reelected the following officers: President, Dr. George W. Berntheizel, Columbia; vice-president, Dr. J. Henry Musser, Lampeter; secretary, Dr. Walter S. Brenholtz, Lancaster; treasurer, Dr. Chester F. Markel, Columbia; and judicial council, Drs. John J. Newpher, Mount Joy, Jacob R. Lehman, Mountville, and Leroy K. Leslie, Bareville.

Personal.—Dr. Fannie Davis has been elected president of the Oil City Medical Club.——Dr. Donald Guthrie, of Wilkesbarre, has been elected physician and surgeon-in-chief of the Robert Packer Hospital, Sayre.——Governor Stuart announced, January 25, the following reappointments: Drs. Daniel P. Maddux, Chester, and Christian P. Seip, Pittsburg, members of the Homeopathic Medical Examining Board; Drs. William H. Blake, Philadelphia and Luther F. Crawford, Tyrone, members of the Eclectic Medical Examining Board; Dr. James B. Walker, Philadelphia, member of the Board of Medical Examiners, representing the Philadelphia County Medical Society, and Dr. Adolph Koenig, Pittsburg, member of the Board of Medical Examiners, representing the Medical Society of Pennsylvania, vice Dr. Guy McCandless.

Philadelphia

Personal.—Dr. George A. Piersol has been elected president of the American Association of Anatomists.——Dr. William Pepper has been chosen president, Dr. George E. de Schweinitz, vice-president, and Dr. R. H. D. Swing, treasurer of the Class Officers' Association of the University of Pennsylvania.——Dr. Joseph S. Evans, who has become professor of clinical medicine in the University of Wisconsin, was given a dinner by his associates January 28, at which he was presented with a loving-cup.

The Scott Memorial.—A number of friends of the late Dr. J. Alison Scott, deeming it proper that some memorial should be raised as a token of the general appreciation of his life and character, have decided to make an endeavor to raise $10,000 to found a fellowship in the Medical Department of the University, and to offer the privilege of contributing to this fund, not only to his classmates and contemporaries, but also to his friends at large. Dr. William Campbell Posey is chairman of the committee, Dr. Joseph P. Tunis, secretary, and George H. Frazier, Esq., treasurer.

Medical Schools May Join Lehigh.—It can be stated that negotiations are now under way toward the possible union of Jefferson Medical College, the Medico-Chirurgical College and the Philadelphia Polyclinic and School for Graduates in Medicine as the medical department of Lehigh University. The Medico-Chirurgical College is about to lose its buildings through the completion of the Parkway, while Jefferson has what is admitted to be one of the finest hospitals in the United States, if not in the world. Its situation, in the center of a large population and its accessibility to both railway stations and the ferries give it great clinical material. It has now become an established fact among educators that the modern professional school must be associated with a university in order to accomplish the most good and to enjoy the most prestige. The affiliation of Jefferson with some university has been discussed before and Princeton has been the institution most frequently mentioned, but this would make difficulties in organization and in the reception of state aid.

WISCONSIN

Personal.—Dr. Joseph N. Arbin, Peshtigo, fell on a slippery sidewalk January 22, breaking his left leg.——Dr. Douglas L. Sauerhering, Wausau, is said to have given up practice and will engage in farming.——Dr. Robert G. Sayle has been elected president of the medical and surgical staff of the Johnston Emergency Hospital, Milwaukee, and Dr. Daniel Hopkinson, secretary.——Dr. Louis P. Valentine, Corliss, who has been ill in St. Mary's Hospital, Racine, has recovered.

Society Meetings.—Rock County Medical Society, at its annual meeting, elected Dr. Daniel R. Connell, Beloit, president; Dr. Thomas W. Nuzum, Janesville, vice-president; Dr. Edwards B. Brown, Beloit, secretary-treasurer; and Dr. Lewis F. Bennett, Beloit, delegate to the state society.——Physicians of Neenah and Menasha have completed the organization of the Neenah-Menasha Medical Club and have elected the following officers: President, Dr. James R. Barnett, Sr.,

Neenah; vice-president, Dr. Frank M. Corry, Menasha; and secretary-treasurer, Dr. Samuel G. Todd, Neenah.——Brown County Medical Society, at its annual meeting, held in Green Bay, January 20, elected Dr. Richard H. Sweetman, Green Bay, president; Dr. Wenzel M. Wochos, Kewaunee, vice-president; Dr. Thomas J. Oliver, Green Bay, secretary-treasurer, and Dr. John R. Minahan, Green Bay, censor.——At the annual meeting of the Douglas County Medical Society, held in Superior, Dr. Lewis Moody, Superior, was elected president; Dr. Fred G. Johnson, Iron River, vice-president; Dr. Thomas J. O'Leary, Superior, secretary-treasurer; Dr. John Baird, Superior, censor; Dr. Herbert J. Orchard, Superior, delegate to the state society, and Dr. Thomas J. O'Leary, Superior, alternate.——Manitowoc County Medical Society held its annual meeting in Manitowoc, January 11, and elected the following officers: Dr. Charles M. Gleason, Manitowoc, president; Dr. Albert M. Farrell, Two Rivers, vice-president; Dr. Adolph J. Shimek, Manitowoc, secretary-treasurer; Dr. Eugene Gates, Two Rivers, censor; Dr. Emil Christensen, Two Rivers, delegate to the state society, and Dr. Frederick S. Luhmann Manitowoc, alternate.

GENERAL NEWS AND COMMENT

Congress Postponed.—The House of Representatives, on January 27, passed a joint resolution previously adopted by the Senate, postponing the invitation to the International Congress on Hygiene and Demography to hold its session in the United States, until 1911 or 1912.

Alumni to Meet.—The next meeting of the Alumni Association of the Lying-in Hospital of the City of New York will be held February 8, at Harvard Club, New York City, at 8:30 p. m. A paper will be presented by Dr. J. Whitridge Williams, Baltimore, on "My Experiences with Pubiotomy in the Treatment of Contracted Pelvis."

Ehrlich Fund.—Mr. John D. Rockefeller, having learned of the distinguished services to medical science which have been and are being rendered by the researches of Professor Paul Ehrlich of Frankfurt, Germany, has presented to the Rockefeller Institute for Medical Research the sum of ten thousand dollars to be placed at the disposal of Professor Ehrlich for furthering his investigations into the chemical therapy of the protozoon diseases.

Personal—Dr. James C. Perry, chief quarantine officer of the Canal Zone, left for his annual leave of absence, January 2.——Lieutenant-Colonel Charles Richard, M. C. U. S. Army, has taken charge of the Division Hospital, Manila.——Major Edward L. Munson, M. C. U. S. Army, has been awarded the Seaman Prize of $100 by the Military Service Institute for the best essay on "Should the Medical Officer be Responsible for the Sanitation and Health of the Troops with Which He Serves; and if so, What Should be His Duties and Responsibilities?"

Defense of Medical Research.—The following statement from Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, appeared in the New York *Times*, January 17. This statement is in reply to sensational articles which have appeared in the New York *Herald* in the past month, charging brutal and needless cruelty on the part of members of the staff of the institute. The principal authority for the charges was a Mrs. Kennedy, who called herself an "assistant nurse" but who, according to Dr. Flexner, was employed as a scrubwoman. The matter is commented on editorially this week. Dr. Flexner's statement follows:

"Within the last few weeks an effort has been made by the New York Anti-Vivisection Society, by charging it with wilful cruelty, to discredit the Rockefeller Institute for Medical Research, and through and with it other institutions in this country in which animal experimentation is being employed to extend our knowledge of human and animal diseases.

"I wish to state with all the emphasis and definiteness that I can place on the words that cruelty is not practiced at the Rockefeller Institute, and would not be tolerated. I wish also to state, with the same emphasis, that no concealment is practiced there, but that the results of its work are published in full detail to the world, and qualified persons are freely admitted to witness the experiments. It is, moreover, an imposition on a lay public, uninformed and properly so of the methods of the hospital operating room, to parade as wanton cruelty when applied to the brute creation the very means which are in daily use to save life and limb in the best hospitals in this country and Europe.

"The character of the witnesses employed by the New York Anti-Vivisection Society to make the charges of cruelty may be gathered from the following facts: The Kennedy woman, the chief witness relied on, was employed as a scrubwoman. The men Dutton and Smith, the other witnesses, were ex-employees discharged for sufficient cause. Since the Kennedy woman stated under oath that the employment in the operating room was very distasteful to her because of the cruel way in which the animals were treated, it is of some importance to learn that she secured, surreptitiously brought to the institute in a bag, and offered for sale for 35 cents, to be used for experimental purposes, the pet cat of her neighbor, and when rebuked by Miss Lilly, the trained nurse, on the ground that the act constituted a theft, she attempted to exculpate herself by saying that as the cat strayed into her rooms, she had a right to it.

"The true value of the so-called damaging testimony against the Rockefeller Institute is, however, further exhibited by a statement, in my possession, made under oath by an ex-employee, to the effect that Mrs. Kennedy, accompanied by two other women, visited her, endeavored to make her say that she had witnessed cruel treatment of animals at the institute, and offered her $100 for information, and that one of the women showed her the money in a bag.

"The purpose of experimental surgery being the extension and perfection of the art of human surgery, it is inconceivable that any but the most precise and perfect means would be employed in the care and treatment of animals used for experiment. In Dr. Carrel, the Rockefeller Institute has had the rare fortune to get a highly distinguished surgeon to carry on this phase of its work. The institute spares, indeed, no expense and pains in providing for the care and comfort of the animals employed there, and the provision made for the animals will compare favorably with the provision made in the leading hospitals for the care of human patients.

"The scientific staff of the Rockefeller Institute has been chosen from among the distinguished scientists in America and Europe. The different universities are the training schools for the staff of the institute. The themes upon which the workers are engaged demand a degree of precision and care that is difficult or impossible of description, in order that the results of the experiments may be trustworthy and valuable. Any roughness or carelessness would spoil the experiment and nullify the result.

"I desire, therefore, to deny totally the statements of cruelty made in the affidavits of Mary L. Kennedy, Samuel Francis Dutton, and Matthew Smith, and to state unqualifiedly that the allegations are false, ignorant, and wilfully misleading."

CANADA

University News.—The Medical Faculty of the University of Toronto is founding a scholarship in surgery, to commemorate the memory of the late Dr. George A. Peters, formerly professor of surgery in the institution.——Mr. W. J. Gage, Toronto, has donated money to found several scholarships in tuberculosis in the University of Toronto.

Personals.—Dr. John L. Davison, Toronto, is recovering after an operation for appendicitis.——Dr. George R. McDonagh, Toronto, has recovered from an attack of pneumonia and has sailed for the Mediterranean.——Dr. Andrew Macphail, Montreal, editor of the *Montreal Medical Journal* and the *University Magazine* will be the editor of the new *Journal of the Canadian Medical Association*, which is expected to be issued about June of the present year.

New Medical Organization.—A new social medical organization has just been founded in Toronto known as the Æsculapian Club. Its membership is limited to sixty and to practitioners of ten years' standing. The first meeting was held January 14, when Justice Riddell delivered an address on "The Relation of Law to Medicine." The February meeting will be addressed by Dr. W. A. Rupert Mitchell, ex-surgeon to the Shackleton Antarctic expedition, who is about to locate in Toronto.

Hospital News.—Lord Strathcona has cabled $25,000 toward the maintenance of the emergency typhoid fever hospital in Montreal. He is willing to contribute $100,000 if a citizens' fund is established toward removing the cause of the outbreak.——In connection with the Toronto General Hospital, the Ontario Clinic for Nervous and Mental Diseases has recently been established, to be in charge of Drs. Charles K. Clarke and Ernest Jones of the Toronto Provincial Hospital for the Insane.——Dr. Charles H. R. Lafontaine, seigneur of Chambly, Quebec, has bequeathed $20,000 to the hospital for incurables, Montreal, and $1,500 to the hospital at Chambly.

Conservation of the Health of Canadians.—The government of the Dominion of Canada lately appointed a commission on

how best to conserve Canada's natural wealth, one section of which will be devoted to public health, with Mr. E. B. Osler, M. P., Toronto (brother of Dr. Osler) as its chairman. In a masterly address on the aims and scope of the commission, the Hon. Clifford Sifton, its chairman, referring to the question of public health matters, stated that while the federal government had spent and was spending hundreds of thousands of dollars in eradicating diseases in animals, practically nothing was being done toward meeting the ravages of diseases among human beings, such for example, as tuberculosis. It is expected that the public health section of the commission will be able to work out an acceptable and useful plan.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Jan. 15, 1910.

Asphyxia Due to Displacement of Artificial Teeth

The danger of going to sleep with artificial teeth in the mouth is well recognized, but cases in which such teeth have proved dangerous during the waking hours are rare. An inquest has been held on a man, aged 52, who was found dead on the highway with a set of false teeth wedged across his throat over the larynx, making it impossible for him to breathe. The medical evidence showed that the teeth were held in position simply by suction, and it was suggested that while walking up hill the man breathed heavily, drew the teeth back into his throat and was unable to release them.

The Pasteur Treatment of Hydrophobia in India

The Kasauli Pasteur Institute has issued a very satisfactory report for 1908. The total number of patients treated was 1,389, of whom 342 were Europeans and the remainder natives. The percentage of failures was only 0.36, the lowest on record in the history of the institute. The method of preparing the vaccine has been altered to that introduced by Professor Höyges of Budapest. This differs from Pasteur's original method, in that the vaccine is prepared from fresh instead of from dried spinal cords. The emulsion can be diluted to any proportion, and the advantages over the older method consist in simplicity of preparation, accuracy of dosage and lessened disturbance of the patient. In all, 2,500 patients have been treated by this method. Every facility is given by the institute to those bitten in any part of India. In the case of a dog bite immediate cauterization of the wound and the securing of the animal, if possible, and keeping it under observation for ten days is advised. If it is alive and well on the tenth day it is not suffering from rabies. If it shows any signs of rabies the patient is directed to proceed to the institute immediately and to bring with him a portion of the dog's brain preserved in glycerin or Zenker's fluid. He should be accompanied by all persons bitten or licked by the animal. All animals bitten by a rabid animal should be segregated for six months, and all infected persons should undergo Pasteur treatment at once. The report gives statistics showing the frequency with which hydrophobia followed the bites of rabid animals. Of 108 persons bitten by supposedly rabid dogs and untreated, 44 died; of 154 bitten by supposedly rabid jackals and untreated, 48 died.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Jan. 14, 1910.

Retirement of Professor Bouchard

Dr. Bouchard, professor of general pathology and therapeutics in the Paris college of medicine and a member of the superior council of public instruction, has just addressed to the minister of public instruction a request to be allowed to retire. In an interview Professor Bouchard said that he wished to retire in order to take some rest and to devote himself entirely to his scientific researches. Eighteen months ago, just before vacation in 1908, he expressed an intention to retire, but at the desire of his colleagues, he remained to preside over the *concours d'admissibilité à l'agrégation* during the month of September following. I have already mentioned the tumultuous incidents to which the program drawn up by Dr. Bouchard for this *concours* gave rise (THE JOURNAL, Jan. 16, 1909, lii, 223). Since that time no new *concours d'admissibilité à l'agrégation* has taken place and no new *agrégé* has been chosen for the college of medicine. The next *concours* (expected to be held in May) will probably elicit numerous new protests and disturbances. Dr. Bouchard has probably no desire to take the responsibility again.

Medical Service in the Industries in which Employees are Exposed to Lead Poisoning

Conformably to a decree prescribing the hygienic measures in the industries in which employees are exposed to lead poisoning, the minister of labor has just issued a decree organizing a medical service in the establishments where these various trades are carried on. A physician chosen and paid by the head of the concern will make examinations and reports. No workman will be employed without a certificate from the physician stating that he presents no symptoms of lead poisoning or of a disease susceptible of being dangerously aggravated thereby. Each certificate must be renewed a month after the workman's entrance and thereafter once every three months. Apart from these periodical visits the head of the concern is bound to have any workman examined at the latter's request or statement that he is unfavorably affected by the work on which he is occupied. A special register is to be constantly kept up to date and held at the disposition of the industrial inspector with specific mention, for each workman, of the dates and duration of absence on account of any illness whatsoever, the dates of the certificates to justify these absences, the medical particulars they contain, the name of the physician who has given them, and the instructions given by the physician of the establishment.

General Assembly of the Corporative Association of Medical Students

The Corporative Association of Medical Students held a general assembly January 10. It decided that this year the association would bring its efforts to bear on the following two points: (1) liberty of the hospital *stage* based on the distribution of *stagiares* in all the services (to-day the *stagiares* are distributed among seven or eight services only) and limitation of the number of students in the service in order to improve clinical instruction for the good both of the profession and of the patient; (2) propaganda, and, if necessary, manifestations in order to bring about the nomination of a superior medical council composed of professors and practitioners, students to have a consulting voice.

Death of Prof. A. Queirel

Dr. A. Queirel, professor of clinical obstetrics at the Marseilles medical school, has just died. Dr. Queirel, who had been national correspondent of the Academy of Medicine since 1892, was elected national associate last July.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Jan. 12, 1910.

Personal

Professors Bernhard Schultze, of Jena, and Hegar, of Freiburg, have been elected honorary members of the Gynecologic Society on the occasion of the fiftieth anniversary of their doctorate.

Centennial of the Hufeland Society

On the first of February the Hufeland Society of this city will celebrate its centennial. Prof. v. Hansemann will deliver an address on Hufeland and the Hufeland Society, and Professor Strauss will speak on Hufeland as physician and Professor Brieger on Hufeland as a balneologist. The society has decided to elect Robert Koch, W. A. Freund, Franz König and Lister as honorary members on the occasion of the jubilee.

Founding of an Imperial Chemical Institute

For some time there has been in contemplation the establishment of an imperial chemical institute for the advice of the authorities in matters pertaining to chemical industry, similar to the physico-technical imperial institute which has been in existence for a number of years, the first president of which was Helmholtz. A definite principle has not been established as to the particular functions of the new institute. The establishment has been delayed because of the financial stringency and insufficient funds of the empire, and also because chemical industry requires for its assistance certain conditions which it is somewhat difficult to fulfill. At present the wholesale chemical industry has established an imperial society which decided at its last meeting to appropriate $225,000 (900,000 marks) for the founding of an imperial chemical institute. As a preliminary the association formulated the demand that the federal government should furnish the ground and that the Prussian department of education should supply a regular professor (*Ordinariat*) from the University of Berlin as president of the institute, and a professor extraordinary as director of one department.

Suicide of School Children

The head of the Prussian National Statistical Bureau, Privy Medical Counsellor Dr. Behla, makes a report in the *Medizinische Reform* on suicide among school pupils in Prussia based on official data. From 1883 to 1907, 1,293 school pupils committed suicide, 1,102 boys and 191 girls. The yearly variations remain in general the same both in the lower and in the higher schools. On the average a suicide occurs each week. Since 1883 the population and the number of institutions have increased, there is therefore a relative decrease in suicide among students. As to the causes of student suicide, it has been shown that in Prussia more than one-fourth of such cases are caused by mental disease; and of the other cases a large proportion are referable to psychic influences. As other causes the tables given by Behla indicate the following: an injured sense of honor, nervousness and competitive work, failure to secure certificate or diploma, lack of promotion, fear of punishment, etc. More than one-third committed suicide from fear of punishment on account of some offense at school or insufficient success in studies. Mental or nervous diseases form the causative factor in 10 to 15 per cent. of cases. With reference to the important question whether the greater blame for the lamentable occurrences should fall on the home or the school, Behla remarks that unquestionably the severe criticisms which have been lately raised against the higher schools are exaggerated. The causes to a large extent lie entirely outside of the schools. On the other hand it should not be overlooked that here and there an unfit teacher has contributed to the catastrophe by corporal punishment and injury to the sense of honor. But on a closer analysis of the motives it appears that causes related to the individual himself, such as mental disturbance, nervous diseases, hereditary taint, insufficient capacity, the development of puberty, etc., play a greater rôle than external influences, among which often only trifles are involved. Behla concludes that educators should exercise greater supervision of the children and control their mental life, and that the teacher should take greater account of the individuality of the pupil.

Results of Radium Therapy

In the Berlin Society for Internal Medicine a short time ago Dr. Löwenthal of Braunschweig, who has had especial experience in this field as a neurologist, delivered an address on radium therapy, which was closed by an interesting discussion. According to Löwenthal one must distinguish between the external and internal action of radium. For external application the radium salts are used. In this case it has been shown that the radium radiations are not essentially different from those of the x-ray. It is, however, distinctly more expensive than the latter. For internal treatment probably only the emanations are applicable. The emanation, which is a gas absorbable by liquids, and which can be introduced into the body in any desired quantity, is found, as is well-known, in atmospheric air and in greater concentration in cellars and subterranean cavities. The identity of the action of emanations with that of natural baths (*Wildbäder*) Löwenthal considers as established. Whether the other healing springs which are of value in metabolic diseases act partly through their content of emanation is unsettled. In the debate Prof. M. Wolff reported experiments which he had made with radium in the treatment of tuberculosis. A bactericidal action of the medium on tubercle bacilli could not be established. All animals that were inoculated with irradiated cultures perished from tuberculosis. Similar results were obtained by the application of the emanations. For this reason Wolff opposes the theory of a bactericidal action of radium on the tubercle bacillus. Finally Wolff applied radium to tuberculous glands in animals but here also the remedy failed completely. The irradiation was continued for seventy-seven days and the action on the skin and hair was so intense that the skin could be pulled off in shreds, but the tuberculous glands showed no retrogression. Dr. Friedländer reported the success in skin diseases from the former clinic of Lassar. Chancroids that had been treated unsuccessfully with the x-ray healed completely under radium. It was also possible to cure many cases of nevus vasculosus which had withstood the x-ray and carbonic acid treatment. Pure radium bromid was applied in a strength of from 4,000 to 20,000 units of radioactivity. No injurious or unpleasant action occurred even with two children. It must not be forgotten that radium, like the x-ray, may show its irritant action only after days or weeks. For this reason the treatment should be interrupted on the slightest appearance of redness, or the application made in a place not previously treated. Dr. Friedländer also had not been able to establish a bactericidal action for radium. Dr. Fleischmann has applied radium emanations in arthritis in the first medical clinic and has repeatedly observed a favorable action. In order to get an idea of the most suitable method of introduction of the emanations four experiments were made on rabbits. After intravenous injections the emanation disappears from the blood in a very short time because it is immediately exhaled by the lungs. On the other hand, after the introduction of water containing emanations into the stomach by means of the sound, the blood was still strongly impregnated with the emanation after one and a half to two hours. Introduction by the stomach is therefore the more suitable. A long-continued inhalation may also be recommended. Brieger has shown that in tuberculosis the temperature rises after inhaling the emanation in proportion to the severity of the case, to the extent of 1.8 C. (3.2 F.). Consequently it may be concluded that radium has a certain activity in respiratory diseases.

The Relations Between the Birth-Rate and Infant Mortality in Prussia

Dr. Hillenberg has published in the *Journal for Social Science* (*Zeitschrift für Sozialwissenschaft*) an interesting study on this important question on which no unobjectionable conclusion has yet been obtained on account of an insufficient statistical basis. In order to answer the question, the birth-rate and infant mortality statistics from 1886 to 1905 of the individual governmental districts of Prussia have been collated in two tables, divided into four sections of five years each, with a separation of the figures referring to the city and the country. As a result it is shown that although in some districts a certain correspondence appears to exist, no regular relation between the two factors of population can be established. In a very large number of the above statistical periods the birth-rate and the infant mortality move in exactly opposite directions. For instance, in the province of Köslin (country) from 1886 to 1890 the birth-rate was 38, the infant mortality 21, and in the same district from 1891 to 1895, the birth-rate and infant mortality were respectively 38.5 and 20.3; from 1896 to 1900, 38.3 and 20; from 1901 to 1905, 38.7 and 18.7. Still more remarkable are differences for the provinces of Trier (country). For 1886 to 1890 the birth-rate and infant mortality were, respectively, 38 and 16; 1891 to 1895, 39.9 and 15.7; for 1896 to 1900, 40.5 and 15.2; from 1901 to 1905, 40.5 and 14.5. The objection that other factors affecting the infant mortality—change of diet, economic and hygienic relations—are more or less uncompensated by the influence of the birth-rate, and so may have occasioned the deviation, is rejected by the author as untenable. He comes to the conclusion that the two chief factors in determining the population, the birth-rate and infant mortality, are independent of each other in Prussia.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Jan. 7, 1910.

Proposed Reorganization of Medical Institutions in Lower Austria

The situation of the public hospitals in this country has been hitherto very precarious owing to the uncertainty of their income. The administration of the hospitals here belongs to one of three governmental bodies, the general government, the provincial government, or the municipality. A number of old hospitals, among them the famous old *Allgemeines Krankenhaus*, were endowed with a special fund at the time of foundation (some 130 years ago). This fund, called the *Krankenhausfond*, though it has been bankrupt for over 40 years, still exists as a legal fiction and is responsible for the expense of treating thousands of patients gratuitously. None of the three governmental bodies mentioned above cares to take the "fund" over, as it would mean the expenditure of many millions before things are put in right order again, and at the same time there is no absolute certainty as to who has to care for the new patients. There is a constant shifting of responsibility among the three corporations, with the result that there is a constant lack of hospital accommodation in this city. These abominable conditions, the result of medieval privileges and unwillingness of the bureaucracy to awake to the duties of modern life, have been often exposed in public and severely criticized without any improvement. On the contrary, the bankrupt *Krankenhausfond* has built the new general hospital and is still building it, without fixing the responsibility for the deficit.

Finally an arrangement has been concluded which has been kept as secret as possible for political reasons, but the details

are now leaking out. The following plan has been adopted, which is ready to be submitted to the Diet of Lower Austria for enactment into law. A special sanitary commission is to take charge of all public medical institutions, including hospitals, asylums, sanatoriums, clinics and street ambulance corps. The property of all these institutions is to remain their own. All funds, grants, gifts, donations, present or future, are also to be administered by the commission, which would also represent these institutions before the courts and the public magistrates.

The chief point is the division of the hospitals into those of Vienna and those of Lower Austria. In Vienna there are the following hospitals:

	Wards.	Beds, Normally.	Beds Maximally.
Allgemeines Krankenhaus	150	1,933	2,250
Wiedner Krankenhaus	32	565	580
Rudolfstiftung	59	860	960
Franz Josef Spital (isolation)	143	726	894
Elisabeth Spital	72	560	608
Stephanie Spital	8	108	130
Wilhelmina Spital	53	425	550

and two smaller hospitals, besides the children's hospitals, numbering five altogether; the Leopoldstädter Kinderspital, with 117 beds; the Kronprinz Rudolf Kinderspital, with 72 beds; the St. Josef Spital, with 100; the St. Anna Spital, with 120, and the Karoliner Spital with 50 beds, and the Policlinik with 130 beds; thus institutions with nearly 7,000 beds will be managed by the commission in Vienna, while another 1,300 beds in the country hospitals will also come under the influence of this body. In order to bring the equipment of all these institutions up to the necessary standard, and for purposes of new establishments, a loan of 38,000,000 crowns ($7,500,000) is necessary. The charge per patient per day will be 2.60 or 3 crowns (52 or 60 cents), which must be paid either by the patient or by his native municipality, if he is without means.

There are several points in connection with this grand scheme which require careful consideration on the part of the profession. First of all, at present, the ruling party in Lower Austria is not too friendly with medical men as a body. The management of the entire hospitals gives this party an enormous influence over doctors, and the ruling party has never shown that it abstains from using its power for its own benefit without heeding anything else. As one of the points of the new arrangements deals also with the appointment of medical men, and as this is also proposed to be at the discretion of the managing board—only restricted in so far as the appointment must be given to one of three men recommended by a combined board of medical men and county councilors—an enormous danger threatens the profession. Already a very active resistance is prepared in medical circles against this clause. It is intended to remove all interference on the part of the commission in all matters pertaining to hospital appointments except as regards payment. We have seen too much of party nepotism to expect good results from this kind of control of public hospitals. Another clause which concerns us very deeply is the fact that also the clinics are to be handed over to the commission. In several letters to THE JOURNAL it has been explained what difficulties were encountered when a vacancy had to be filled by a competent, eminent professor. This would make matters worse still, owing to the well-known opposition of the party in power to all advance of science. And there is little hope that in a short time its power could be overthrown. Therefore it is expected that due pressure will be brought to bear on the government to retain control over all teaching institutions, including clinics, and to hand over to the commission only the other hospitals. The announcement of the entire plan has not been received by the public with uniform satisfaction, because the enormous expenditures of public money (as it is said, in party interests) in building the Steinhof Asylum has made the population rather distrustful of the financial management of their "fathers." On the other hand, the existence of a certain body responsible for the management of all hospitals, endowed with full power to erect new houses for medical purposes and possessing sufficient funds, instead of the eternal conflicts of the present day, would be a boon to the sick poor of the country. The population of Lower Austria being some 3,500,000, it must be conceded that 8,300 beds are not sufficient for the needs of poor patients. If the commission would actually fulfil its alleged purpose, then its existence would tend toward the public welfare. At all events, we must be careful and watch over the interest of the public as well as over our own

Pharmacology

TWO MORE "CANCER CURES" CHECKED*

The Chamlee Cancer Cure Declared a Fraud by the Post-office Department

Three weeks ago we called attention to the scheme which S. R. Chamlee, M.D., of St. Louis, was working to get around the restriction that had been imposed on his cancer "curing" activities by a fraud order issued by the government. Chamlee, it will be remembered, operated one of the now fast-disappearing "cancer cure" frauds and attempted to frighten the impressionable by advertising that "in woman's breast any lump is cancer." After the postal authorities had refused the use of the United States mails to Chamlee he sent out letters to his prospective victims telling them to send their money by express money order addressed to the "St. Louis Sanitarium Company" and he would send the "medicine" by express. As soon as the attempted evasion was brought to the attention of the officials the fraud order was extended to cover the "St. Louis Sanitarium Company."

As these lines are being written it has been brought to the attention of THE JOURNAL that Chamlee is now soliciting business under the title "United Specialists Cancer Cure Company" at the same address as of old; doubtless the fraud order will receive yet further extension.

In the memorandum submitted to the postmaster-general Chamlee's methods are described at some length. Chamlee represented that he could "cure cancer without knife or pain" by sending certain medicines to the patient to be used at home. The treatment was, of course, "the greatest discovery and wonder of the world," and the "cure" was "absolutely guaranteed," for Chamlee possessed the "only perfect cancer cure known to science." There were many more falsehoods to the same effect.

The price asked for the "medicine to cure the cancer . . . including everything necessary," was $25, which was reduced to $15 if the first few letters failed to "land" the victims. A patient who filled in a question blank and sent $15 received a twelve-ounce bottle containing a dark colored liquid labeled "Dr. Chamlee's Cancer Specific." This was to be taken internally, a teaspoonful in water before or after meals. Another bottle came with the "treatment" and contained a dark colored liquid with directions to "apply to the surface of sore twice a day. Let dry a moment, then cover over with the black salve spread thinly on a cloth." There were five packages of the "black salve." Analysis of these "remedies" made in the government laboratories gave the following results:

No. 1.—"CANCER SPECIFIC" FOR INTERNAL USE

Strychnin, Iron, Saccharin	traces
Alcohol	6.00 per cent.
Water	93.50 per cent.

No. 2.—EXTERNAL APPLICATION

Alcohol	22.00 per cent.
Water	21.81 per cent.
Glycerin	large amount
Tannin	
Carbolic acid	
Opium	

No. 3.—"BLACK SALVE"

Resin
Beeswax
Fat

And these were the materials with which the cancer was to be "cured" at from $15 to $25 a "treatment."

The assistant attorney-general, in summing up his recommendations to the postmaster-general, said:

"I am satisfied that said [Chamlee's] business is not conducted in good faith, but merely as a scheme to fraudulently

* A much more complete account of these two cases is published in pamphlet form, entitled, "A Duo of Cancer Fakes;" it is sold at four cents a copy. This is a companion pamphlet to "A Trio of Cancer Fakes," which deals with the Curry Cancer Cure Co., the B. F. Bye Sanitarium and the L. T. Leuch Cancer Cure; it also sells for four cents a copy.

extort money without intending to return therefor the services promised and without any belief that patients with cancer can be cured as represented. . . . I therefore recommend that a fraud order be issued against said party." This recommendation the postmaster-general accepted and the fraud order was issued.

The William O. Bye Cancer Cure Declared Fraudulent

The Bye family is well known to all who have given even a cursory study to the "cancer cure" phase of quackery. The latest—and we believe last—one of this family to be put out of business by being denied the use of the United States mails is W. O. Bye of Kansas City, Mo. This individual had his license to practice medicine revoked by the Board of Health of the State of Missouri in 1908, but by appealing to the courts he, unfortunately for the good name of the state, compelled the setting aside of the order of revocation.

Bye is associated in his business of "curing" cancer with one B. F. Freeman, M.D., and the business is also conducted under the name of Drs. Bye and Freeman. As may be remembered, the members of the Bye family "cure" cancer by means of a "soothing, balmy oil," which unimaginative chemists have shown to be nothing more wonderful than ordinary cottonseed oil. W. O. Bye used the methods common to his kind: lying claims, imitation typewritten letters, "testimonials," etc. He, too, had "an infallible cure for all forms of cancer" which would "remove every vestige of the cancer virus," for the moderate price of $25, reduced when victims hesitated to $12.50. A patient sending for the treatment received three bottles of liquid, a box of tablets and three boxes of ointment. These were analyzed by the government chemists and the results obtained were briefly as follows:

No. 1.—"Prescription No. 0.:" Practically the same as syrup of sarsaparilla.

No. 2.—"Prescription No. 4:" Almond oil mixed with cottonseed oil.

No. 3.—"Prescription No. 120:" Compressed tablets of talcum and sugar."

No. 4.—"Prescription No. 90:" Petrolatum.

No. 5.—"Prescription No. 220:" Practically the same as cataplasma kaolini.

In attempting to vindicate his method of treatment Bye relied largely on the deposition of witnesses that had been taken in his fight against the Missouri State Board of Health. These depositions were to the effect that the witnesses had been afflicted with, what their local physicians had in many instances pronounced, cancer, and which Bye's treatment had cured. The government officials produced correspondence from the physicians referred to in the depositions showing that in nearly every instance the physicians denied having made the diagnosis claimed, and in every instance showing that no microscopic examination had been made from which it could have been positively said that the trouble was cancer.

Summed up, the evidence showed that Bye and Freeman were conducting a fraudulent scheme, and on the recommendation of the assistant attorney-general the postmaster-general issued a fraud order against them.

Meeting of the Board of Trustees of the United States Pharmacopeial Convention

The board met at the Chittenden Hotel, Columbus, Ohio, January 28 and 29. The following were present: Dr. James H. Beal, Scio, O., acting chairman; F. W. Meissner, La Porte, Ind.; Prof. Joseph P. Remington, Philadelphia; Dr. George H. Simmons, Chicago, Ill.; Dr. H. M. Whelpley, St. Louis, Mo., and the secretary of the board, Dr. Murray Galt Motter, Washington, D. C.

A special committee reported on use of the text of the Pharmacopeia by other books. A signed agreement with one publisher was submitted and a committee, consisting of Beal, Remington and Motter was appointed with power to act in protecting the Pharmacopeial copyright in a case which has not been satisfactorily settled.

The constitution of the U. S. P. convention provides for the admission of delegates to the May 10, 1910, convention from certain classes of organizations and from certain specifically named associations and government departments. Amendments to the constitution must receive the affirmative vote of at least five members of the board of trustees before being submitted to the convention, where a three-fourths vote of the delegates constituting the convention is required to pass an amendment to the constitution. The board of trustees received a long list of communications from various local associations, some national organizations, state boards of pharmacy, state associations, teaching institutions, and other pharmaceutical and medical bodies, not provided for in the constitution, all requesting the board of trustees to submit to the convention amendments to the constitution, providing for the admission of additional delegates. The board decided to submit for the consideration of the convention amendments providing for delegates from the National Wholesale Druggists' Association, the National Dental Association, the Association of State and National Food and Dairy Departments, and the Department of Commerce and Labor of the United States Government. It will require a three-fourths vote of the convention to adopt these amendments and seat the delegates.

The board of trustees passed a resolution recommending to the convention that representatives of the University of Havana be accorded the privileges of the floor.

The board passed a vote of thanks to Professor Diaz of the University of Havana for the services he has rendered pharmacy in translating the text of the United States Pharmacopeia into Spanish.

A motion recommended to the convention an amendement to the constitution, reducing the required period of incorporation for teaching institutions and state associations represented in the convention from five to two years, was lost.

The board will recommend to the convention an amendment to the constitution, providing for a general committee on revision of fifty members which is to elect from its own number an executive committee on revision of fifteen members. The amendment will provide certain duties for each committee.

The text of the various amendments will be submitted to the pharmaceutical and medical journals of the United States by the secretary of the board of trustees. Parties interested can obtain copies of the constitution and by-laws by addressing Dr. Murray Galt Motter, 1841 Summit Ave., Washington, D. C.

The board of trustees recommends to the convention that a revised edition of the Pharmacopeia be prepared five years after the publication of the U. S. P. IX, if in the judgment of the committee of revision and the board of trustees such a revision is desirable.

Dr. C. S. N. Hallberg, of Chicago, submitted a communication in regard to prescription statistics and was authorized to complete the work.

The committee on arrangements was authorized to engage the services of a competent stenographer to report the 1910 convention. Provision was made for an assistant to the secretary of the board of trustees.

The provisions for badges and buttons and the publication of a list of delegates to the convention was referred to the committee on arrangements, with power to act.

The local committee of arrangements was instructed to invite the dean of the ministerial corps, Senor Calvo, to address the 1910 convention.

The additional two thousand copies of the Spanish edition of the Pharmacopeia have been printed and satisfactory sales are reported.

The board adjourned to meet at the New Willard Hotel, Washington, D. C., May 9, at 10 a. m.

H. M. WHELPLEY, Secretary U. S. P. Convention.

Exposures of the False Claims of Nostrum Makers are getting before the public more and more. Every time a druggist reads one of these exposures he would do well to pause long enough to formulate a reply to the question, What must the intelligent portion of the public think of a man who endorses these fakes for a profit?—*Druggists Circular.*

Correspondence

Physicians, Proprietary Preparations and the Detail Man

To the Editor:—We are indebted to some of the big drug manufacturing firms for many excellent products, and in this country, where private capital, unaided by government subsidy, must find proper returns, no fair-minded person denies these firms the right of bringing their products to the notice of the medical profession.

This they seek to do through the advertising columns of reputable medical journals and by every form of printed circular, extract, reprint or written communication.

The individual practitioner can consider at his leisure such new preparations as interest him and seem to bear the stamp of genuine merit. If the product has been reliably made, has been tested pharmacologically, and has received the endorsement of men whose opinions carry weight, the clinician feels justified in using it in his practice. But even then, if he is wise, he will follow the poet's advice and "be not the first by whom the new is tried, nor yet the last to lay the old aside."

But the race is too swift, the dividends must be larger, and so the country is literally flooded with all sorts and descriptions of drugs and combinations of drugs which must be consumed and the detail man is evolved. If the plausible detail man succeeds in getting the physician to use his firm's goods on his representations alone, it would seem that the physician merely becomes an agent for the drug house, and not an intelligent, conscientious counsellor of the sick.

The other phase of this question, the effect on the laity of the endorsement by the physician of proprietary preparations, needs only to be mentioned in this connection.

Briefly, the method now employed by drug manufacturers and distributors of having a representative call on members of the profession to present the claims of their preparations is objectionable for several reasons:

1. The presumption is that the doctor needs instruction in pharmacology and therapeutics.

2. Even though the preparation sought to be exploited has merit, the time and attention grudgingly given by the busy physician is not sufficient to enable him to obtain the precise information he should have before experimenting with the drugs.

3. The vast majority of concoctions left in physicans' offices by detail men are utterly worthless.

Now, because some of the members of the profession do need instruction in materia medica, and admitting their deficiency are willing to accept the kind that is offered by any sort of untrained youth who will give them a ready-made formula with each half hour's tutoring, must all the rest who are bold enough to prescribe simple pharmacopeial drugs and N. F. preparations, whose merits stand proved, submit to this gratuitous bottled information from which it is only necessary for the druggist to remove the original label and place thereon the doctor's (that is, of course, the detail man's) instructions!

The Council on Pharmacy and Chemistry undertakes to lighten our burdens by thoroughly investigating certain of the vast number of new preparations, but of necessity the process of elimination is slow, and the drug houses are taking every advantage of this fact.

The men representing many of these firms are polite, deserving individuals, and our complaint is not against them, but against their employers. At least one county society, the Jefferson County (Ala.) Medical Society, seems to believe that the limit of endurance has been reached, and that patience is no longer a virtue, and has sought to give its members relief by the passage of the following resolutions, which place it unequivocally on record:

Be it Resolved, That it is the sense of the Jefferson County Medical Society that the employment by its members of proprietary formulas in the administration of drugs be discountenanced, and that the members be urged to familiarize themselves with the drugs and preparations of the U. S. Pharmacopeia and National Formulary, which are in every way adequate to their needs. Be it further

Resolved, That the decisions of the Council on Pharmacy and Chemistry of the American Medical Association regarding non-official preparations be considered as final and binding in our attitude toward them, and notice of the same is hereby given to all drug and pharmaceutical houses, in order that they may be saved the expense, and ourselves the annoyance, of unnecessary interviews with detail men. Further, be it

Resolved, That the members of the society are recommended to have copies of this resolution printed in convenient form to be displayed in their offices or on cards to be presented to detail men.

The effect of such a movement in the locality concerned will depend naturally on how general the endorsement of the spirit and the practical application of the plan suggested in the resolution.

However this may be, I believe that the time has come when the medical profession in justice to itself and the public at large must bring about a reform of the growing evil. The higher class firms, whose productions are most valuable, will readily assent to any reasonable plan adopted by the profession for correcting this condition, and the others will be compelled to follow suit.

CABOT LULL, M.D., Birmingham, Ala.

Improved Method of Applying Plaster Jacket

To the Editor:—In THE JOURNAL, January 8, is a letter by Dr. F. J. Cotton of Boston referring to an article of mine published in THE JOURNAL of December 25, on "An Improved Method of Applying the Plaster Jacket," and in which he says that the method described is precisely similar to a method described in Bradford and Lovett's work on orthopedics. I take exception to that. The methods are certainly similar in having the patient lie on a sling while the plaster is being applied, but the details have been worked out differently in the two cases. Dr. Cotton calls the old method an emergency method, so apparently it was not very satisfactory; but I think that in its new form the method will prove to be more than that. In the short experience I have had with it I prefer it to the methods of application in common use, with which I have had some experience and would like to have it given a trial by the profession generally. I may say that I never heard of a sling method of applying a plaster jacket before publishing my paper, although I searched all the literature at hand, as it seemed unlikely that such a simple method of application should have escaped the attention of the orthopedists. While Dr. Cotton is partly right in his statements, still my description shows differences which I regard as improvements on the old method and which decidedly modify it.

K. D. PANTON, M.D., Vancouver, B. C.

The Public Service

Medical Corps of the Navy

Changes for the two weeks ended Jan. 29, 1910:

Foster, T. G., P. A. surgeon, commissioned P. A. Surgeon from Jan. 16, 1909.

Flint, J., P. A. surgeon, commissioned P. A. Surgeon from February, 1909.

Haynes, J. P., P. A. surgeon, detached from temporary duty at the Naval Hospital, Norfolk, Va., and ordered to continue other duties.

Bell, W. H., surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered home to wait orders.

Anderson, F., medical director, commissioned Medical Director from Dec. 13, 1909.

Medical Department of the Army

Changes for the week ended Jan. 29, 1910:

Boak, S. Davis, dental surgeon, reported for duty at Army General Hospital, San Francisco.

Kieruff, H. N., 1st lieut., M. R. C., leave of absence extended 10 days.

Cutliffe, Wm. O., 1st lieut., M. R. C., ordered to accompany 2nd Battalion, 19th Infantry, from Fort McIntosh, Tex., to San Francisco, on the completion of this duty will return to his station.

Harris, Jesse R., capt., ordered to proceed to the Philippine Islands, for duty revoked, and instead Captain Harris is relieved from duty at Fort George Wright, Wash., and will proceed to Fort Gibbon, Alaska, for duty.

Grissinger, Jay W., capt., relieved from duty at Fort Gibbon, Alaska, and will proceed to Seattle, Wash., and report to The Adjutant General of the Army, for further orders.

Allen, John H., capt., relieved from duty at Fort Monroe, Va., and ordered to Fort Myer, Va., for duty.

Lamson, Theodore, capt., granted 30 days' leave of absence.

Snow, Corydon G., lieut., granted 10 days' leave of absence.

La Garde, Louis A., and Bannister, John M., lieut. cols., promoted to be Colonel, with rank from Jan. 1, 1910.

Kendall, William P.; Banister, William B.; Woodruff, Charles E.; Mason, Charles F.; Glennan, James D., majors, promoted to be Lieutenant Colonels, with rank from Jan. 1, 1910.

Shook, Jay R.; Vose, William E.; Woodbury, Frank T., Rutherford, Henry H.; Ruffner, Ernest L.; Brooks, William H.; Barney, Charles N.; Whitmore, Eugene R.; McAndrew, Patrick H.; Brownlee, Charles Y.; Murtagh, John A.; Ekwurkel, George M.; Van Poole, Gideon McD.; Reno, William W.; Buck, Carroll D.; Gosman, George H.; Koerper, Conrad E.; Allen, John H.; Patterson, Robert U.; O'Connor, Roderic P.; Noble, Robert E., and Van Dusen, James W., capts., promoted to be Majors, with rank from Jan. 1, 1910.

Vedder, Edward B., capt., relieved from duty at Fort Stevens, Ore., and ordered to the Philippine Islands for duty.

Miller, Albert L., 1st lieut., M. R. C., ordered to proceed from Fort Meade, So. Dakota, to Fort Robinson, Neb., for temporary duty.

Rhodes, R. H., dental surgeon, left Columbus Barracks, Ohio, en route to the Philippine Islands for duty.

Roberts, Ernest E., 1st lieut., M. R. C., will proceed to Omaha, Neb., for observation and treatment by Lieutenant Colonel John M. Banister, Medical Corps.

Brown, Orville G., capt., leave of absence extended 30 days.

Bryan, Ray W., lieut., relieved from duty as Surgeon of the transport *Thomas*, and ordered to Jefferson Barracks, Mo., for duty.

Glennan, James D., lieut. col., ordered to proceed to San Francisco, Cal., for assignment to duty in command of the Army General Hospital, San Francisco.

Kennedy, James N., major, relieved from duty in command of the Army General Hospital, San Francisco, and ordered to Fort Shafter, Honolulu, H. T., for duty.

Wadhams, Sanford H., major, relieved from duty at Fort Shafter, Honolulu, H. T., and ordered to proceed to San Francisco, and report to The Adjutant General of the Army, for further orders.

Webber, Henry A., major, leave of absence extended 15 days.

Public Health and Marine-Hospital Service

Changes for the week ended Jan. 26, 1910:

Wasdin, Eugene, Surgeon, granted 1 month's leave of absence from Jan. 22, 1910, on account of sickness.

Oakley, J. H., surgeon, granted 1 day's leave of absence, Jan. 21, 1910.

Von Ezdorf, R. H., P. A. surgon, granted 2 months' leave of absence from Jan. 15, 1910.

Vogel, C. W., P. A. surgeon, detailed to represent the service at the meeting of the American Society of Inspectors of Plumbing and Sanitary Engineers, Trenton, N. J., Jan. 20-22, 1910.

Amesse, J. W., P. A. surgeon, leave of absence for 2 months from Nov. 1, 1909, amended to read 1 month and 9 days from Nov. 1, 1909, and 21 days from Jan. 14, 1910.

Foster, Albert D., P. A. surgeon, directed to proceed from Amoy to Hongkong, China, for duty.

Manning, Herbert M., P. A. surgeon, relieved from duty at Washington, D. C., and directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty.

Pettyjohn, Joseph, P. A. surgeon, granted 7 days' extension of leave of absence en route to station.

Wollenberg, R. A. C., asst.-surgeon, granted 25 days' leave of absence from Jan. 22, 1910.

Hamilton, J. H., acting asst.-surgeon, granted 3 days' leave of absence from Jan. 12, 1910.

Mason, Wm. C., acting asst.-surgeon, granted 3 days' leave of absence from January 26, 1910.

Ransom, S. A., acting asst.-surgeon, granted 2 days' leave of absence from Dec. 11, 1909, without pay.

Stewart, W. J. S., acting asst.-surgeon, granted 30 days' leave of absence from Jan. 18, 1910.

Tuttle, Jay, acting asst.-surgeon, granted 30 days' leave of absence from Feb. 14, 1910, with pay, and a further period of 22 days, without pay.

Walkley, W. S., acting asst.-surgeon, granted 11 days' extension of annual leave from Dec. 31, 1909, on account of sickness.

RESIGNATION

Assistant Surgeon Charles E. Wood, resignation accepted by the President, to take effect Jan. 31, 1910.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE MERCURY COLPEURYNTER

To the Editor:—Recently I saw an article in THE JOURNAL advocating the use of the mercury colpeurynter. How is it used, and how does it act?
C. W. R.

ANSWER: This method of treating gynecologic disorders was originated by Pincus in 1905, and was described in THE JOURNAL, Feb. 27, 1909, p. 719.

APPARATUS FOR ENTEROCLYSIS

To the Editor:—I have devised a method for enteroclysis. What have you published on the method recently?
S. K.

ANSWER.—The following articles on this subject have appeared recently:

Murphy, J. B.: "Proctoclysis in Treatment of Peritonitis," THE JOURNAL, April 17, 1909, p. 1248.

Newman, S. E.: "Continuous Enteroclysis," THE JOURNAL, April 17, 1909, p. 1250.

Iverson, M.: "Proctoclysis," THE JOURNAL, June 12, 1909, p. 1926.

Kemp, R. C.: "New Container for the Preservation of a Constant Temperature of Saline Solution for Rectal Irrigation or Infusions," *New York Medical Journal*, Aug. 14, 1909; abstr. in THE JOURNAL, Aug. 28, 1909, p. 740.

Paterson, H. J.: "Continuous Proctoclysis," *British Medical Journal*, Aug. 28, 1909; abstr. in THE JOURNAL, Sept. 25, 1909, p. 1063.

Harbin, R. M.: "Apparatus for Proctoclysis at an Even Temperature," THE JOURNAL, Dec. 25, 1909, p. 2160.

Garratt, J. M.: "An Improved Saline Transfusion Apparatus," THE JOURNAL, Dec. 25, 1909, p. 2161.

"The Vacuum Bottle in Proctoclysis," THE JOURNAL, Jan. 22, 1910, p. 306.

TRANSPLANTATION OF ORGANS AND LIMBS

To the Editor:—Please give references to the work done in grafting parts of animals, and also information concerning the men engaged in these experiments.
J. A. WATSON, Halifax, Nova Scotia.

ANSWER.—The following are the principal American articles treating of the transplantation of organs and limbs:

Carrel, A.: Transplantation of Organs, THE JOURNAL, Nov. 25, 1905, p. 1645.

Carrel, A., and Guthrie, C. C.: Complete Amputation of Thigh with Replantation, *Am. Jour. Med. Sc.*, February, 1906; abstr. in THE JOURNAL, March 17, 1906, p. 834.

Carrel, A.: Results of the Transplantation of Blood Vessels, Organs and Limbs, THE JOURNAL, Nov. 14, 1908, p. 1662. Pictures were omitted from THE JOURNAL but were published in reprints.

Guthrie, C. C.: Physiologic Aspects of Blood-Vessel Surgery, THE JOURNAL, Nov. 14, 1908, p. 1658.

Carrel, A.: Transplantation of Members, *Revue de Chirurgie*, Dec. 10, 1908.

The work has been done mainly by Dr. A. Carrel, who is a member of the Rockefeller Institute for Medical Research, and by Dr. C. C. Guthrie, professor of physiology in the medical department of Washington University, St. Louis.

JONNESCO AND STOVAIN

To the Editor:—Some stir locally has been created by reports regarding stovain, which has had considerable prominence in our local paper. By reason of our surgical instrument section we are subscribers to THE JOURNAL and the writer, though a layman, is much interested in the articles it contains bearing on new remedies. Your journal is to us, as it should be to every dispenser of drugs, a real assistance and aid. Taking up the matter of stovain, we would like to ask whether there is any available way whereby we may arrive at a correct estimate of its value. Yesterday, Associated Press despatches contain an item from a Chicago physician who pronounces Dr. Jonnesco a "medical gold brick." The writer would like to get some literature bearing on the actual value of this drug. We failed to find any reference to it in the columns of THE JOURNAL.
——— & Co.

ANSWER.—Several issues of THE JOURNAL have contained information on the recent revival of spinal anesthesia by the modified method which Jonnesco uses, that is, the combination with strychnin. When Dr. Jonnesco first came to this country, THE JOURNAL took a conservative position in the issues of Nov. 27, 1909, page 1831, and Dec. 18, 1909, page 2117. A more definite pronouncement was made Jan. 22, 1910, page 293. In the last-mentioned issue, page 281, is an article on the subject. The above references also name various articles which have appeared in the world's literature, both on the general subject of spinal anesthesia, and on the special method of Jonnesco; these should provide anyone interested with the means of looking the subject up pretty thoroughly. Incidentally, it may be remarked that in the editorial of January 22, in speaking of drugs having a depressing effect on the heart and respiration, stovain was included. The manufacturers, however, claim that stovain exerts a tonic action on the heart.

QUININ TREATMENT OF PNEUMONIA

To the Editor:—Are large doses of quinin (60 grains) given in bronchopneumonia or in lobar pneumonia? How are such large doses given?
W. CUMMINGS, Ryan, Iowa.

ANSWER.—The large doses of quinin have been given in the lobar form of pneumonia. As stated editorially in THE JOURNAL, March 17, 1906, the large doses are old, having been used by Juergensen and others over 30 years ago. The treatment was revived in recent years, chiefly by Dr. W. J. Galbraith of Cananea, Sonora, Mexico. The method of administration was described in detail in an article by Dr. Galbraith in THE JOURNAL, July 9, 1904, as follows:

"When the temperature has reached 105 F. or over, 60 grains of quinin sulphate are administered as the initial dose, followed in one hour by one-half this amount, or 30 grains, and the following hour by one-half the latter dose, or 15 grains, at which time I begin the administration of tincture of iron in doses ranging from 7 to 15 minims, depending on the date of the disease and the condition of the heart. If I see the patient on the first or second day of his attack, I usually begin with about 10 minims of the tincture of iron, increasing it one or two drops, or even more, each day up to the sixth or seventh day, unless the pulse remains full and strong."

"When the temperature is 104 F. or over, I give 50 grains of sulphate of quinin and follow the same course as above stated. When the temperature is 103 F., I give from 30 to 40 grains, following the course above stated."

The other side of the question is shown by Dr. W. C. Alvarez, also of Cananea, Sonora, Mexico, in a letter published in THE JOURNAL, June 13, 1908, in which he states that physicians there "who have seen the treatment used most now never use it in their private practice, and most emphatically condemn it." He states that during a three months' stay in Cananea in 1904 he had an opportunity to study this treatment and was impressed with its harmfulness. He says:

"As in most company hospitals, only the simplest case records were kept, and these by an untrained Mexican who occasionally puts down the temperature, pulse, food, bowel movements and the medicine given. I noticed that the dosage, which at first was 75 grains, was reduced to 40 and often to 20. The patients often vomited the quinin shortly afterward, and they sometimes could not stand the iron. Dr. Galbraith's statement that there is no crisis is correct, because a sthenic case is soon transformed into what resembles a bad case of typhoid, and recovery is very slow, with delayed resolution, empyema, femoral phlebitis and other sequelæ. . . . I have never seen the pulse benefited—though it often stands the treatment wonderfully—but I have seen the patient become nearly pulseless. I have also seen a big, strong young man take about three weeks for resolution after this treatment, and three days after his discharge from the hospital he dropped dead in his chair. A few months ago I saw a powerful young Mexican, who had every prospect of recovery, die after taking what I computed to be 40 grains of quinin. He had been doing well until the fourth day, when he took the 'specific,' which was followed by terrible tinnitus and a bursting feeling in the head. He became almost completely blind, was delirious all night and next day died after a few hours of stupor."

Society Proceedings

HOOKWORM CONFERENCE

First Southern Health Conference, held in Atlanta, Ga., Jan. 18-19, 1910

(Continued from page 395)

Symptoms of Uncinariasis

DR. GEORGE DOCK, New Orleans: Many writers on hookworm in America emphasize the large proportion of cases in which there are few or no symptoms. This was true of practically all the 60 recruits found to harbor hookworm out of 100 examined by Chamberlain. Recently, at my suggestion, Dr. Bass and Dr. Gage have examined the stools of medical students from various parts of the South, and they found as many as 30 per cent. in one class affected. Among these men, as among the recruits examined by Chamberlain, good digestion and full feeding doubtless have much to do with the relatively good condition of the hosts. It is interesting to note the number of worms in some of these cases. The average number in Chamberlain's cases was 16, ranging from one to ninety-nine. Dr. Bass in one case found 200. Even the smaller figure, 16, shows that the carrier could be a danger to those running the risk of infection, if he followed the habits of the country in any place where the soil and climate favor the life of the carrier, that is, in most inhabited regions of the Southern states. It may be assumed that among healthy looking people, from one-quarter to one-half have hookworm, and the only symptom is the presence of the eggs in the stools. The chief factors that tend to cause uncinariasis, or disease phenomena due to hookworm, other than absence of immunity, are early age and poor diet. The disease is most destructive in the young, the greatest amount of sickness and death occurring between ten and thirty years of age. Mild cases pass imperceptibly out from the latent cases, but when recognizable show a sallow skin and variations in appetite, digestion, and action of the bowels. There is sometimes pain in the abdomen. The muscles are soft and flabby; fatigue is easily brought on, so that laziness is often present, and mental indulgence is likely to be associated with it. In more distinct cases there is pallor, with hemoglobin sometimes lower than would be suspected from the color of the skin, *i. e.*, about 60 per cent. Palpitation of the heart, dyspnea on exertion, dizziness and tinnitus, are often associated.. The cachectic appearance is likely to be attributed to dyspepsia, or to the quality of food eaten, or sometimes to malaria, which may even be associated, or amebic dysentery; but the diagnosis can readily be made by examining the feces for ova.

In the moderate cases pallor and dyspeptic symptoms are more distinct, and often dominate the picture. Perversions of appetite occur, but are often concealed by the patient, so that the symptoms may not at once be striking. Nausea is frequent. Vomiting may occur. Tenderness in the epigastrium, or lower down in the abdomen, with a feeling of weight, is common. Dyspnea and palpitation of the heart are frequently present. There is often slight dilatation of the heart. Accentuated murmurs over the base and the great vessels and a frequent and weak pulse, with more or less dropsy, are present. Muscular weakness is sometimes pronounced. Dizziness, tinnitus, headache, and physical and mental torpor are frequently marked. Paresthesia, pains in the joints, and absent knee-jerks often occur in such cases.

In the severe cases the anemia, weakness and dyspepsia are more severe. Dropsy occurs in the subcutaneous tissue and abdomen, and other serous cavities. The appetite may be completely lost, or may be voracious, with pica, leading to the eating of earth, dirt of all kinds, rags, hair, etc. The dyspnea and cardiovascular symptoms are intense, as are the loss of strength and apathy. Impotence in men, and amenorrhea in women are almost invariable, yet the women may bear children, who are either rachitic or show marked cachexia, and in turn become subjects of severe uncinariasis. In some cases the severe symptoms develop suddenly, either from complete health, or from a milder form and quickly lead to death.

Bodily development is a point of importance. Severe uncinariasis in childhood causes a remarkable lack of development, so that a person of from 20 to 25 may resemble in height, lack of body hair, and of genital growth, and also in bony development, a child of 12 or 14. In these cases the face sometimes has a much older look, and often a characteristic tired and anxious expression, absent from some other trophic diseases, with retarded development, like myxedema. Puberty is delayed, and menstruation may not begin until 18 or 20, or not at all. Too little attention is paid to the dermatitis that in many, if not most cases, plays a part in the infection. While most patients give a history of ground-itch, dew-itch, or the like, few such cases are seen by physicians. But all should be seen by physicians, who should have in mind the possibility of hookworm, and search for ova up to ten weeks from the beginning. The color of the skin may vary from a slight pallor to a dead white, or a deep sallow, or marked lemon color, as in pernicious anemia. Pallor of the ears, nail beds and mucous membranes varies in the different degrees. The scleræ are usually white or bluish-white, and do not show the fine granular yellow, subconjunctival fat, so characteristic of pernicious anemia of idiopathic form. Emaciation is not always present, or it may be masked by edema. Mental and nervous symptoms are numerous and varied.

The abnormalities of the blood are striking and suggestive. The color of the skin and the general appearance of the patient suggest pernicious anemia, but the hemoglobin is always relatively low, and the eosinophils almost always high, in strong contrast to the former disease. Retinal hemorrhages occur in both diseases. Night blindness is comparatively frequent in hookworm anemia. As in some other diseases aneurism may be suspected, or valvular disease readily cured by proper treatment. The hookworm is the cause of the symptom directly or indirectly. It must be sought for by searching for its ova, which, even in mild infections, can be found by a brief search. All other possible causes of disease, such as malarial parasites, amebas, other intestinal parasites, and organic diseases, must be searched for by proper methods.

Treatment of Hookworm Disease

DR. H. F. HARRIS, Atlanta, Ga.: Fortunately the treatment of hookworm disease is exceedingly simple, and if persisted in is always satisfactory. In most diseases the physician has to content himself with attempting to combat the symptoms of the malady from which his patient is suffering, there being in the vast majority of instances no specific treatment. It is unfortunately true that the same poisons that kill the living, disease-producing agencies in nearly all instances have the same effect on the human organism. In those cases, however, in which the more highly organized animal parasites occur in the human intestine we have several drugs that kill the infective agent without seriously disturbing the general health of the patient, and most happily the hookworm is one of the organisms that is most easily killed and removed in this way. The diagnosis having been established by microscopic examination of the feces, on the day before the treatment is to be begun the patient is advised to eat little dinner and no supper at all. Late in the afternoon he is given a full dose of calomel, the amount varying from 2 to 10 grains, depending on the age and strength of the patient. Castor oil could perhaps be administered with safety, but inasmuch as all oily substances dissolve and make more readily absorbable the thymol which is to be given on the following day, and as the absorption of any considerable amount of this substance will produce poisonous effects, it is generally advisable to leave this drug out of the treatment altogether. If the calomel acts freely during the night no other purgative need be administered on the following morning, but if it should not do so a full dose of Epsom salts in hot water should be administered as soon as the patient wakes up. After the bowels have thoroughly acted finely powdered thymol in capsule is then given, the quantity depending on the age and strength of the patient. It is perhaps a good rule to be guided by the apparent age of the individual who is to be treated rather than that stated, as many of these unfortunates appear as much as 6, 8 or 10 years younger than they are in reality. The dose of thymol should be divided into two equal parts, the first half being given at once and the second at the expiration of an hour. Following the administration of the medicine the patient should be instructed to remain in bed, and lying on the right side may perhaps more or less assist in permitting the drug to pass quickly into the intestine from the stomach. The amount that should be given is as follows: Up to 5 years of age, from 7 to 10 grains; from 5 to 10 years, from 10 to 20 grains; from 10 to 15 years, from 20 to 40 grains; 15 years and over, 40 to 60 grains. In advanced age the quantity should be somewhat less than during middle life. It is much to be preferred that the physician should always take into consideration the exact age and strength of his patient in administering this drug, it being a rather bad practice to prescribe arbitrarily different quantities of the drug between certain ages.

The patient should be allowed no breakfast and no dinner on the day of treatment. I permit a cup of coffee one or more times during the day, but nothing in the nature of food should be allowed. If the patient experiences no ill effects from the thymol, it is well to put off the administration of a laxative until 4 or 5 o'clock in the afternoon, at which time some saline should be administered in hot water. It is well at this point again to caution against castor oil. After the bowels have acted well the patient may be allowed to have food. When the treatment is carried out faithfully in the way just described I have rarely found it necessary to repeat it. It is, however, well after a couple of weeks to make another thorough examination of the feces, and should the microscope reveal the presence of eggs the treatment should be repeated, and this should be done over and over again until exhaustive examinations of the feces show by absence of the eggs of the parasite that all the worms have been expelled.

There are still other drugs that are more or less employed for the purpose of killing this parasite, betanaphthol especially being employed by many physicians. I have never used it, but it is said that it acts quite as well as thymol when administered in the same quantity. Dr. A. G. Fort, of Lumpkin, Ga., states that after considerable experience he prefers it to thymol as he considers it less dangerous. When I first began the treatment of this disease I made it a rule to give iron and tonics following the administration of the thymol, but I was soon convinced that these adjuvants were of no particular value, the patient recovering just as quickly without as with them. This being the case, it appears inadvisable to give drugs of this class to which the patient would be apt incorrectly to ascribe his cure.

The Educational Campaign Against Hookworm in Texas

DR. W. M. BRUMBY, Austin, Tex.: The discovery of uncinariasis in Texas dates back to 1895 when Dr. Allen J. Smith, then professor of pathology in the University of Texas, isolated the ova in a male patient in Galveston. Later, in 1902, the same species of ova were demonstrated in an Australian sailor hailing from Mexico. The announcement by Dr. Charles Wardell Stiles of the *Necatur americanus*, and his paper before the Texas State Medical Association in 1903 marked the beginning of interest among physicians in the state. This, however, does not represent the introduction of hookworm disease in Texas, for an examination of the entire student body of the Texas State University in 1902 revealed the parasite in 10 per cent. of the students, who represented every part of Texas. Recent investigation revealed the infection of 31 per cent. of the male students examined in one of the state normal institutes. The students there are preparing to become teachers, are necessarily advanced scholars, and usually represent the most intelligent class of students. Little or no outward manifestations of the disease was present in any of those infected.

The high, dry, arid regions of the northwestern and western sections of Texas contraindicate a widespread infection; the parasite has been demonstrated as far north and west as Hunt county near the northern boundary of the state, and that, too, in the black land belt. The state bacteriologist has found repeated specimens in 22 counties in the southern and eastern part of Texas and those intervening counties being of similar soil, temperature, and climatic conditions the assertion is warranted that every county in Texas east of the ninety-seventh degree of longitude and south of thirty-fourth degree of latitude is more or less infected with hookworm. This section represents fully one-half the population of the state, and portrays the urgent necessity of persistent and widespread measures for the eradication of this disease in Texas.

As an evidence of the lack of attempt of prevention of soil pollution in the rural districts, the state bacteriologist, in a recent trip through the eastern part of Texas counted from the car window one hundred cabins and huts along the railway, and only five of that number had even an open back closet. Our people, as is no doubt the case throughout the South, do not appreciate the importance or seriousness of this disease. This lack of information is not confined to the masses, for we have reason to believe that many of the resultant anemias and sequelæ of uncinariasis are being treated by physicians at the present time as chronic malaria, tuberculosis, and other chronic maladies.

The only systematic endeavor to establish the approximate degree of infection in any given locality was with the aid of the teachers in the public schools in Anderson county. This is a county in the center of the hookworm area and is of mean soil and climatic conditions, and, therefore, may be regarded as an index of the real situation. Of the pupils examined 25 per cent. were found infected although quite a number of pupils were from a city with a fairly good sewer system. The method of procedure was to provide each teacher with a pamphlet on symptomatology, and instructions for collecting specimens, and request her to furnish specimens of stools from a uniform percentage of children under her care showing the most marked symptoms of the disease. The method proved very successful with those teachers who appreciated the possible benefits of science and humanity sufficiently to give us the desired cooperation, for their diagnosis was good as the resulting figures will show. Even in this work we have been hampered for lack of sufficient funds to gain accurate information as to the prevalence of the disease in the hookworm zone.

The State Board of Health has had a reprint of two of Dr. Stiles' articles published, as well as pamphlets prepared by the board, and these have been distributed by the thousands. In addition a list has been compiled of every microscope in the state and the services of its owner enlisted. These individuals have promised aid and have already done much good in their individual investigations, but we have been unable to take advantage of such opportunities and the effort from this source has been limited to the report of but a few localities. Efforts have been limited to educational work, for we recognize the importance of widespread instruction to every locality before we can hope to adopt compulsory measures for the prevention and cure of this disease. We have given lectures and addresses to many of the medical societies, the state teachers' convention, to various schools and mothers' clubs, presenting display cards something on the order of the tuberculosis exhibit, with interesting pictures and mottoes illustrating the ova and larva magnified, the subjects themselves, representing the methods of infection, practical fly-protected outdoor closets and instructions on symptomatology, prophylaxis and treatment. The efforts at educational work as with the investigations has been limited because of the lack of proper appropriations. It is to be hoped that the stimulus of Mr. Rockefeller's munificence and the educational work of the commission will result tenfold in the next three years in augmenting public health appropriations in all southern states.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Fourth Annual Meeting, held at Albany, Jan. 25-26, 1910

The President, DR. CHARLES G. STOCKTON, Buffalo, in the Chair

PROCEEDINGS OF THE HOUSE OF DELEGATES

The House of Delegates met January 24, with DR. STOCKTON presiding.

President's Address: Betterment of the Society

DR. CHARLES G. STOCKTON, Buffalo: Some systematic plan should be adopted to increase the membership and thus widen the influence of the society. A committee might be appointed to devise means of increasing the interest in county societies, and cooperation with the committee on scientific work would prove advantageous. Accordingly I recommend that a committee be appointed, with a man from each county, to consider and report on this matter. I also recommend that the society begin a propaganda of education to take steps to introduce a pure food law which shall be complementary to the national law.

Report of the Committee on Public Health

DR. JOHN L. HEFFRON, the Chairman, read this report:

The committee has interrogated the 57 county medical societies in the state concerning local conditions pertaining to the public health. Replies have been received from only 21. Eight of these, viz.: Albany, Greene, New York, Otsego, Schoharie, Suffolk, Tioga, and Westchester, report conditions that are satisfactory. From the remaining 13 there are evidences of interest in the pollution of water courses by sewage, in the securing of pure food supplies, including milk, and in adequate provision for the care of the tuberculous poor.

These are all vital questions and must remain the subjects of serious discussion until the public is secured from their evils.

POLLUTION OF WATER

The question of the pollution of streams and lakes that are the sources of water supply to communities is a state and national one. Individual communities have been in the habit of disposing of the sewage in accordance with the mechanical law of least resistance, and have used for sewage disposal natural water courses that have flowed from them with perfect impunity, thinking nothing and apparently caring nothing about other communities further down the streams. Manufacturers have pursued the same course, until now it is safe to say that no water sheds in the state are free from pollution, except only those few over which the state has granted especial guardianship to individual cities. By such usage for a long period of time communities and manufacturers have claimed to have acquired certain legal rights to continue such a course, and the present law of the state is inadequate to compel them to stop this practice, however clearly proven it may be that it damages the health and prosperity of other towns and individuals.

By the act of 1903 the inauguration of new sewage disposal systems, by the use of natural water courses and the establishment of new manufacturing plants along water courses that would pollute the streams is put within the jurisdiction of the commissioner of public health and can be controlled. But as the law now stands the commissioner of public health has no jurisdiction over those who were polluting water courses prior to 1903 and who continue so to do. This is a grave defect in the law and is the cause of the persistence of many cases of the communicable diseases capable of transmission through water, and, indirectly, through milk and other food supplies like the green vegetables and fresh fruits that are rinsed in running tap water. In the recent conference of sanitary officers of the State, Professor Sedgwick, of the Massachusetts Institute of Technology, spoke of the sewage pollution of Niagara River and of the tremendous death rate from typhoid fever in Niagara Falls, and properly classified such pollution as a matter of interstate and international importance.

During the last session of the state legislature an amendment to the health law was introduced in both houses which gave the commissioner of health, with the approval of the attorney-general and the governor, power to order out of water courses pollutions that are a menace to health or which constitute a public nuisance, howsoever long such pollutions may have been carried on with impunity.

The committee recommends:

That the Medical Society of the State of New York declares its opinion that the public health is endangered by the pollution of water courses, and that the legislature should at once so amend the health laws as to make such pollution amenable to the control of the commissioner of public health under proper safeguards.

PURITY OF FOODS

The question of the purity of foods has received much needed attention in recent years and has again come prominently before the public during the past year.

The earnest presentation by the medical profession of the subject of the adulteration, the sophistication and the preservation of food stuffs by the use of harmful drugs, supported by the press and by the people, secured the enactment of a law popularly known as the Pure Food Law. In the nation and in the states the provisions of this law have been carried out with reasonable efficiency, though with a constant fight with some manufacturers and packers because of their criminal greed. In the packing of meats and the manufacture of meat products, fraud had become so general that the reputation of the nation was at stake, and it became necessary to secure legislation by which the inspection by a government official of the material used and of the methods employed was instituted. Such inspection has produced salutary changes and little complaint is longer heard of the quality and purity of these products. The increasing cost of food supplies and the increasing difficulty in securing domestic service, from both of which evils there is no apparent relief, make it more and more important that we should be able to depend with confidence on the commercial food kitchens of the country. Almost no day passes but accounts appear in the newspapers of wholesale poisoning from the use of canned foods. Such illnesses and deaths are wholly preventable. Their occurrence is a crime, and they disgrace our country. They menace the canning industry. Only recently the health officer of a city is reported in the papers to have said that no canned goods are safe. Such a sweeping condemnation is not warranted. But the converse of this proposition ought to be true. It is the duty of a government that has undertaken to protect the people to make universally true the statement that all canned foods are safe. To accomplish this there is demanded the same searching inves-

tigation of materials used and methods employed in the canning industry as became necessary to save foreign and domestic markets for American meat products.

There is not, at present, knowledge concerning the physiologic action of any of the antiseptic drugs used as food preservatives which is sufficiently full and convincing to warrant authoritative statements. On the other hand, the conclusions published by the special commission authorized to investigate the effect of benzoate of soda on the human economy are at variance with the hitherto recorded experience of the medical profession. That statement alone indicates the necessity of the withholding of the seal of government approval of the unlimited use of this or any other antiseptic drug until this important question is settled so definitely that the medical profession shall accept the conclusions without any hesitation whatsoever. The medical profession has always stood as a bulwark to defend the people against that which is inimical to health. It has no quarrel except with those who practice fraud and deceit for their own gain and with those who are criminally ignorant or careless.

The committee recommends:

1. That this society respectfully requests the President of the United States and the Secretary of Agriculture to secure an amendment to the national Food and Drugs Act by which the use of antiseptic drugs in canned fruits and vegetables and in all preparations from fruits and vegetables designed for human consumption shall be prohibited, and,

2. That the inspection of the commercial food kitchens of the United State by government officials, for the purpose of insuring the use of sound materials, cleanliness of methods, and compliance with the law concerning adulterants and the use of drug preservatives, be made obligatory.

3. That Congress be and is hereby urgently requested to institute an investigation with reference to determining in what additional particulars the Food and Drugs Act, as now construed and enforced, fails to afford adequate protection to the American people.

4. That this society respectfully urges on Congress and the Senate of the United States the organization, under a single bureau to be known as "The Bureau of Public Health," of all the offices and agencies now having duties in any way connected with the preservation of the public health except only those offices having to do with the protection of the health of the army and navy.

With such a bureau established it will be more easily possible to properly correlate the public health departments of the nation, the states and individual communities in the states. Such a correlation is desirable and necessary, for many of the problems confronting many local boards of health have a scope which is interstate and national in extent.

STATE CONTROL OVER LOCAL BOARDS OF HEALTH

Without waiting for the consummation of such a plan in its entirety, it seems desirable to secure in our own state a closer relation between the local health authorities and the state commissioner of health. Local boards of health and health officers are at times influenced to neglect of duty by personal considerations. Charges of favoritism and of persecution are not uncommon, and the smaller the community the greater becomes the influence of personal consideration. At present the public health law gives little control to the state department over local boards. In cases of inefficiency and neglect of duty on the part of local boards the state department should have the power to act for the benefit of the people, as provided for in the enforcement of the laws in other departments. Last year a bill was introduced into the assembly and senate to establish a school of sanitary science at Cornell University. It passed the assembly but did not reach the senate. Your committee favors a general bill, if one is needed, which would encourage every university having a college of medicine to inaugurate a course leading to the degree of doctor of public health. It recommends that this society disapproves of the appropriation of state moneys for the establishment of any course in the university which is not solely under state control.

There never was a time when interest in preventive medicine was greater than now. It is the subject of frequent articles in magazines and of public addresses. The contributions for the scientific investigation of many diseases that affect the public were never so munificent nor so numerous. A true spirit of research is being fostered in many students of medicine in this country, and the conscience of the people is getting awakened. Despite our carelessness in the handling of infectious diseases, the problems of which are already completely solved, like smallpox, typhoid, diphtheria and tuberculosis, there is a substantial gain. How much greater that gain might be to the state is known only to those who recognize the present difficulty in carrying into effect the beneficent provisions of the public health laws.

Report of the Secretary

DR. WISNER R. TOWNSEND, New York: The council at its May meeting passed a resolution permitting members who joined their county societies after Oct. 1, 1909, to have their state assessments credited to 1910, if they so desired; 144 took advantage of this provision, so that the membership of 6,370 will be increased on Jan. 1, 1910, to 6,514, a gain of 348 over the membership on Jan. 1, 1909. Deducting the 209 reinstated members of 1908 from 374 dropped Dec. 31, 1908, the loss is only 165 for that year.

The increase in society membership for the years 1908 and 1909 should encourage the county societies to make still greater efforts in the future. The 250 or more who each year drop out for various reasons cannot be avoided, as death alone claims nearly one-third. The percentage of resignations and dropped members is very small compared with the large membership, and shows clearly the excellent work done by the county officers, especially the secretaries and treasurers.

Report of the Counsel

JAMES TAYLOR LEWIS, counsel for the society: No year in the history of organized malpractice defense has been so fruitful of results in the stamping out of blackmailing cases as the present one. During no year has my work met with such enthusiastic support by the medical fraternity as during the one just past. More cases have been tried than in any other year, and while it is true that the number of cases brought has slightly increased, yet that is easily accounted for by the fact that malpractice defense has during the past year become generally known in the profession, and I have been called on for that reason to assist more members whose cases in other years may have gone to other attorneys, or may have been settled. The fighting spirit and determination not to be blackmailed by unscrupulous patients has manifested itself on many occasions, all of which is most satisfactory. Eighteen cases have been actually tried by me, but I have had the misfortune to lose one case so far as a verdict is concerned, and in this litigation a new trial has been asked for on errors committed by the trial justice, and which has been held in abeyance for several months. I have absolute confidence in the ultimate success of this case also. I began the defense of malpractice actions on Sept. 1, 1900. Since that time over 250 cases have come before me, and of that number 138 have been actually tried, none finally lost, and one now on appeal. Not one dollar of damages has ever been paid. This is a result not even hoped for, and the success of organized malpractice defense in the hands of state societies has been demonstrated. It is interesting to note that during the past year a majority of the cases begun are by women plaintiffs. It is difficult to determine just what this means, unless it is that the attorneys bringing them hope to enlist the sympathies of a jury, irrespective of whether or not there is merit in the patient's claim.

Report of the Committee on Experimental Medicine

This committee, in cooperation with the committee on legislation and with public-spirited men throughout the state, labored successfully to prevent the passage by the legislature of 1909 of two bills intended to regulate experiments on living animals. Each bill sought to impose restrictions which were against the public welfare on the performance of scientific observations. The hearing on both bills was held before the judiciary committee of the assembly on March 23, 1909, and before the judiciary committee of the senate on March 24, 1909. At both of these hearings arguments were presented in favor of the bills by their friends, and in opposition to the bills by members of the committee on experimental medicine and others. Subsequent to the hearings the assembly committee decided not to report either bill, while the senate committee took no action. This result represents a greater victory than that of the previous year, when the assembly

committee took no action whatever *pro* or *con*, while the committee of the senate reported one of the two bills to that body. As an aid in carrying on the above work the committee has caused to be prepared and published twenty brief articles in the form of leaflets, dealing with the subject of scientific experiments on living animals. These present the main facts regarding animal experimentation, its methods, its value in the investigation of specific diseases and of physiologic facts, its ethics, its legal aspect in the state of New York, and the opinions of eminent authority regarding it. These leaflets have undoubtedly played an important part in the work of the committee. They have received wide notice in the press and have been in demand in other states and in European countries, and the authors and editors who have given their services in preparing them have made effective contributions to the successful defense of medical research and teaching.

The following resolutions were adopted:

Resolved: That the delegates of the Medical Society of the State of New York to the American Medical Association be instructed to extend an invitation to the American Medical Association to hold its annual session in 1911 in Buffalo.

Resolved: That the Committee on Experimental Medicine be continued for the ensuing year and that each member of the house of delegates hereby pledges his best efforts in opposing any encroachment on animal experimentation for scientific medical purposes that may be presented to the next session of the Legislature.

Report of Committee on President's Address

This committee presented the following report, which was adopted:

1. On the recommendation that a plan be adopted to increase the interest in the state society, the committee recommends that the matter be referred to a special committee to be appointed by the president.
2. The committee advises the adoption of the recommendations of the president that a committee be appointed to consider the advisability of rearranging the counties of the state into districts, and suggests that the secretary of the state society be a member of that committee.
3. The committee recommends that the matter of pure food legislation be referred to the committee on legislation.

A committee was appointed to consider in a fitting manner the celebration of the eightieth birthday of Dr. Abraham Jacobi.

(*To be continued*)

Marriages

ARTHUR J. HOOD, M.D., to Miss Irene Hunter, both of Elko, Nev., January 13.

MERRITT BRICE, M.D., Baltimore, to Miss E. Louise Strong, at Baltimore, January 12.

HUGH M. COX, M.D., to Miss Margaret Adelaide Kuhn, both of New York City, January 24.

GEORGE GIBLEN RAMBAUD, M.D., New York City, to Miss Gerville-Reache, Nov. 24, 1909.

JOHN BAPTIST HELES, M.D., to Miss Clara C. Tschudi, both of Dubuque, Iowa, January 11.

RICHARD SAUNDERS MARTIN, M.D., to Miss Jean Perkins, both of Stuart, Va., January 12.

OFFA LUNSFORD SHIVERS, M.D., to Miss Virginia Allen Hurt, both of Marion, Ala., February 2.

CHARLES A. ROBERTS, M.D., Rochelle, Ill., to Miss Marie Teterle, of Lowell, Mich., January 6.

MICHAEL C. COSTELLO, M.D., Calgary, Alta., to Miss Pearl Corrigon, at Kingston, Ont., recently.

ELMER PHILIP STIEHL, M.D., Floraville, Ill., to Miss Ottilie C. Gauter, at Floraville, Nov. 23, 1909.

WILLIAM W. BEVERIDGE, M.D., to Miss Emma L. Johnson, both of Asbury Park, N. J., January 20.

HENRY JANNEY WALTON, M.D., Baltimore, to Miss Helen Alford Smith, at Baltimore, January 18.

DANIEL RALPH LUCAS, M.D., New York City, to Miss Lois Ford, of Richmond Hill, Long Island, N. Y., January 14.

ROBERT EDWARD HOLBROOK, M.D., Ninga, Man., to Miss Margaret Pithie, of Strathcona, Alta., at Winnipeg, Man., Dec. 31, 1909.

THOMAS KENNEDY CONRAD, M.D., Chevy Chase, Md., to Miss Julia B. Smith, of Gordonsville, Va., at Washington, D. C., November 25.

Deaths

John Read Bailey, M.D. University of Michigan, Ann Arbor, 1854; a member of the American Medical Association; first president of the Chippewa County (Mich.) Medical Society; attending surgeon at Fort Mackinac, Mich.; formerly acting assistant surgeon U. S. Army; surgeon of the Eighth Missouri Volunteer Infantry, and brevet lieutenant-colonel, U. S. V., surgeon-in-chief and chief of operating corps, Second Division, Fifteenth Army Corps, and special medical purveyor of the Army of the Tennessee in the field during the Civil War; physician for the Ottawa and Chippewa Indians at the Michilimackinac agency; state park commissioner of Michigan; to whose work many of the beauties of Mackinac Island owe their existence; for fifty-four years a resident of Mackinaw; died at the home of his brother in Fort Smith, Ark., January 18, aged 76.

Alvin Herbert Eccleston, M.D. Albany (N. Y.) Medical College, 1880; formerly local pension examiner, and a member of the Rhode Island Board of Health; examining surgeon at Providence for the New York, New Haven and Hartford Railroad; consulting surgeon of the Providence, Fall River and Newport Steamship Company; surgeon to the Providence Police Association; a member of the Rhode Island Medical Society, and New York and New England Railway Surgeons' Association; formerly a member of the town council and chairman of the school committee of Richmond, R. I.; for two terms a member of the legislature; major and surgeon of the United Train of Artillery and retired with the rank of colonel; died at his home, January 23, from shock and cerebral hemorrhage, following an automobile accident, January 22, aged 51.

James Henry Richardson, M.R.C.S., England, 1847; M.B., University of Toronto, 1848; M.D., 1850; professor of anatomy in his alma mater, the Toronto School of Medicine and the Toronto University until 1898, when he became emeritus professor; for many years a member of the senate of the University; and of the council of Upper Canada College; for many years surgeon of the Field Artillery, The Merchants Company, and Tenth Royal Regiment, retiring with the rank of surgeon-major, with service in the Fenian raid and the long service medal; formerly president of the Ontario Medical Council died at his home in Toronto, January 15, from senile debility, aged 86.

John Powell Wilson, M.D. College of Physicians and Surgeons, New York City, 1870; a member of the Medical Society of the State of New York; for twenty-one years a surgeon in the state service; at first assistant surgeon of the Twenty-first Infantry, N. G., N. Y., and in 1883 made captain and assistant surgeon, and assigned to the Nineteenth Separate Company; once health officer of the city of Poughkeepsie, and for many years township health officer; died at his home, January 17, from cerebral thrombosis, aged 64.

William Balser, M.D. New York Medical College, New York City, 1862; of New York City; a member of the Medical Society of the State of New York and New York Academy of Medicine; a surgeon of volunteers during the Civil War; for twenty years on the staff of the German Hospital as consulting physician; and for thirty-one years actively connected with the German Dispensary; died at his home in Richmond Hill, Queens, January 24, aged 72.

John Young Shindel, M.D. Pennsylvania Medical College, Gettysburg, 1855; of Middleburg, Pa.; assistant surgeon of the Forty-seventh Pennsylvania Veteran Volunteer Infantry during the Civil War; for several years pension examiner; afterward a member of the board of school directors; secretary of the city council and chief burgess of Middleburg; died at his home in that city, January 5, from cerebral hemorrhage, aged 75.

Robert H. Crowder, M.D. Rush Medical College, Chicago, 1866; who, after one year of medical work in 1860 and 1861, entered the federal service as captain of the line in the Eleventh Indiana Volunteer Cavalry; was later transferred to the medical corps as surgeon with rank of major, and afterward practiced for many years in Sullivan, Ind.; died at his home in that city, January 20, from cerebral hemorrhage, aged 69.

James Chalmers Walker, M.D. New York University, 1894; a member of the Medical Society of the State of Pennsylvania, and formerly president and secretary of the McKean County Medical Society; visiting physician to the Bradford Hospital and president of the municipal board of health;

local surgeon of the Buffalo, Rochester and Pittsburg Railroad; died at his home January 16, from heart disease, aged 37.

James Pears Reed (license, Mich., 1900); from 1864-1866 a student in the University of Michigan, Ann Arbor; a member of the Michigan State Medical Society; and for forty years a practitioner of Rockwood; a surgeon of volunteers during the Civil War; died at his home, January 18, from cerebral hemorrhage, aged 70.

Joseph Matthias Holden, M.D. University of Southern California, Los Angeles, 1899; of Long Beach; a member of the Medical Society of the State of California, and formerly a member of the American Medical Association; died in the Clara Barton Hospital, Los Angeles, January 17, from nephritis, aged 35.

James Francis Conneffe, M.D. Medico-Chirurgical College of Philadelphia, 1908; a member of the Ohio State Medical Association; a member of the staff of the State Hospital, Columbus; died in a cottage on the hospital grounds, January 20, from typhus fever contracted during a recent visit to Mexico, aged 33.

Adolphus Theodore Cotten, M.D. College of Physicians and Surgeons, Baltimore, 1879; a member of the Medical Society of the State of North Carolina, and the Raleigh Academy of Medicine; died in that city, Nov. 10, 1909, from intestinal obstruction, following an operation for cholelithiasis, aged 53.

William J. Furze, M.D. McGill University, Montreal, 1907; medical attendant for the employees of the Western Canadian Power Company at Ruskin, B. C.; died at Stave Falls, near that place, Dec. 14, 1909, from the effects of a fracture of the skull due to an accidental fall from a bridge, aged 42.

Joseph Shotwell Smith, M.D. University of Maryland, Baltimore, 1891; of Wheeling; a member of the West Virginia State Medical Association; for eight years a member of the staff of Glendale Hospital; died in Haskins Hospital, Wheeling, January 19, from cirrhosis of the liver, aged 42.

Charles B. Gatchell, M.D. Pulte Medical College, Cincinnati, 1874; formerly of Chicago; for many years secretary of the American Institute of Homeopathy; editor of the *Medical Era*; died in Los Angeles, Cal., January 27, after an operation for the removal of a vesical calculus, aged 63.

Rufus Woods Gillette, M.D. Dartmouth Medical School, Hanover, New Hampshire, 1872; local surgeon at Danville, Ill., for the Chicago and Eastern Illinois Railroad for more than twenty years; died at St. Elizabeth's Hospital in that city, January 20, from locomotor ataxia, aged 60.

John W. Hyatt (registration, Texas, act of 1907); was found dead in his room in the Bellevue Hotel, Bellevue, Texas, January 19, from an incised wound of the throat, supposed to have been self-inflicted with suicidal intent while despondent on account of ill health.

John Emerson Prather, M.D. St. Louis College of Physicians and Surgeons, 1896; a member of the American Medical Association; of Winchester, Ill.; who was taken ill January 4, while making a professional call in the country, died January 16, from pneumonia, aged 43.

Sidney Crooks McClure, M.D. Hospital College of Medicine, Louisville, 1878; of Jeffersonville, Ind.; formerly clerk of the Indiana State Prison, South, and an official of the Jeffersonville Board of Health; died in Mercy Hospital in that city, January 17, aged 58.

Robert S. Beazley, M.D. Jefferson Medical College, 1842; twice a member of the Virginia senate; and a member of the Underwood Constitutional Convention; died at his home in Roudabush, near Stanardsville, Va., January 18, from pneumonia, aged 88.

David W. Magee (license, Ill., 1879); for thirty-five years a practitioner; brevet brigadier general during the Civil War; for two terms postmaster of Peoria; died at the home of his daughter in that city, January 18, from senile debility, aged 84.

Hiram Thomas Clary, M.D. Bennett Medical College, Chicago, 1884; of Winfield, Kan.; a member of the local pension examining board; died at the home of his son in Kansas City, Mo., January 17, from acute dilatation of the heart, aged 71.

Frank A. Stovering, M.D. Western Reserve University, Cleveland, 1889; one of the founders and chief of staff of St. John's Hospital, Cleveland; died in that institution, January 11, from septicemia, due to an operation wound, aged 41.

David B. Kilpatrick, M.D. Detroit Medical College, 1875; formerly a member of the Michigan State Medical Society and a veteran of the Civil War; died at his home in Woodland, January 20, from cerebral hemorrhage, aged 72.

John C. Coleman, M.D. Eclectic Medical Institute, Cincinnati, 1874; a member of the Ohio State Medical Association; a veteran of the Civil War; died at his home in New Marshfield, January 21, from heart disease, aged 65.

C. R. Norman, M.D. Memphis Medical College, 1852; a member of the Mississippi State Medical Association; formerly a member of the American Medical Association; died at his home in Dlo, Miss., January 7, aged 83.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

KANSAS: State House, Topeka, February 8. Sec., Dr. F. P. Hatfield, Olathe.
NEBRASKA: State House, Lincoln, February 9. Sec., Dr. E. Arthur Carr, 141 S. 12th Street.
WYOMING: State Capitol, Cheyenne, February 16-18. Sec., Dr. S. B. Miller, Laramie.

Iowa September Report

Dr. Louis A. Thomas, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Sept. 21-23, 1909. The number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 12, of whom 3 passed and 9 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Iowa, College of Medicine	(1909)	82.6
Woman's Medical College of Baltimore	(1909)	87.6
University of Pittsburg, Medical Department	(1909)	84.2
FAILED		
Chicago College of Medicine and Surgery	(1909)	68,* 71.2
Keokuk Medical College, College of Physicians and Surgeons	(1900)	68.2;* (1904) 63.4;† (1906) 69.5.‡
Drake University, College of Med.	(1908)	65.5;† (1909) *70.6
St. Louis College of Physicians and Surgeons	(1909)	63.5,* 71.7

* Second failure.
† Third failure.
‡ Fifth failure.

Texas November Report

Dr. M. E. Daniel, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Greenville, Nov. 9-11, 1909. The number of subjects examined in was 12; percentage required to pass, 75. The total number of candidates examined was 32, of whom 31 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Arkansas	(1899)	75
Howard University, Washington, D. C.	(1909)	76.3
Northwestern University Woman's Medical School	(1890)	80
Rush Medical College	(1876)	75.5
Indiana University	(1909)	79
Louisville Medical College	(1906)	77.7
Hospital College of Medicine, Louisville	(1877)	75
University of Louisville	(1876) 75.1; (1882) 76.7; (1908) 84.3; (1909) 75, 76.3	
Kentucky School of Medicine	(1886) 75.6; (1891) 75.5; (1908) 85.7.	
Tulane University of Louisiana	(1901)	82.2
University of Maryland	(1906) 83.9; (1909)	82.9
Tufts College Medical School	(1894)	81.3
Homeopathic Medical College of Missouri	(1881)	75.9
American Medical College, St. Louis	(1906)	76.7
Columbia University, College of Phys. and Surg.	(1909)	89.8
Memphis Hospital Medical College	(1904) 79.4,	81.3
Meharry Medical College	(1908) 75.1,	76.5
University of Tennessee	(1890)	75
University of the South	(1909) 82.9,	92.8
Fort Worth University	(1909)	75.1
Southwestern University Medical College, Dallas	(1909)	82.5
FAILED		
St. Louis College of Physicians and Surgeons	(1908)	50.5

Utah January Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Jan. 3-4, 1910. The number of subjects examined in was 17, total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. Four reciprocal licenses were granted at this examination. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Chicago	(1907)	75
Harvard Medical School, Boston	(1907)	86.7
St. Louis University	(1909)	83.4
Jefferson Medical College	(1908)	79.6
Medical College of Ohio	(1907)	84.4
University of Pennsylvania	(1908)	82.5
Tokio Medical College, Japan	(1906)	76

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University Medical School	(1890)	Iowa
Central College of Physicians and Surgeons	(1904)	Indiana
University of Kansas	(1907)	Kansas
Cornell University Medical College	(1899)	New York

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Vital Statistic Legislation a Necessity for Suppression of the Midwife Evil

Considerable interest is being manifested at present in Europe regarding the care of parturient women by midwives. Birth records show a high percentage of puerperal mortality and morbidity in women under their care. A prominent gynecologist of Berlin, thinking that midwives were comparatively unknown in the United States, has recently written us asking for the percentage of deaths in obstetric cases in the United States in order to institute a comparison between puerperal mortality in this country and Europe. We have been forced to write him that statistics of any value on this subject are not available, owing to a lack of proper state vital statistic legislation. Midwives conduct labor cases in every state in the Union and an investigation a few years ago showed that not more than a dozen states had any law whatever regulating or restricting them and that even in the states where such laws existed, they were inadequately enforced. Midwifery is not so well regulated in this country as in Europe and yet the harm done is probably less, since midwives are not so numerous, it being more common here, except among the recent immigrants, to employ physicians to attend labor cases. The evils resulting from ignorant midwives are well known to physicians, but more education of the public and of the state legislatures will be required before midwifery is properly restricted. Its abolishment under present conditions is probably impossible.

An investigation made in Chicago in 1908 (THE JOURNAL, April 25, 1908, p. 1346), showed that there were at least 500 midwives in the city and that 40 per cent of all labor cases were conducted by them. In one immigrant colony, all of one nationality, 86 per cent. of births were attended by midwives. Many of these women are also engaged in criminal practices. In New York City among 500 midwives, only 40 per cent. had had any adequate training, while, on account of lack of supervision as well as personal carelessness, not over 10 per cent. were actually capable and reliable.

The mortality figures of the Census Bureau show that in 1908, the deaths from childbirth in the registration area (comprising 51.8 per cent. of the population) comprises 7,344 women, or 16.3 per 100,000 of population, and that from 1901 to 1905, the average death rate from this cause in the same area was 14.3 per 100,000. Under this head are included accidents of pregnancy, puerperal hemorrhage, and other accidents of labor, puerperal septicemia, puerperal phlegmasia alba dolens, and other puerperal accidents and diseases. As no figures are available as to the number of midwives and the number of cases attended by them, or as to how many deaths among their patients were preventable, it is impossible to estimate the percentage of deaths attributable to improper management in the hands of midwives. The total mortality due to ignorance and actual criminal practices is beyond conjecture. It is probably very large.

The present condition of our national vital statistics is a national disgrace. The Committee on Medical Legislation of the American Medical Association is carrying on a campaign for an adequate and uniform state law on vital statistics. Efforts are being made to extend the registration area by adopting this model bill in a few states at a time. With more complete vital statistics, it will be possible to show the damage wrought by ignorant attendants on parturient women and with these figures at hand, the campaign of education may then be extended and agitation for the proper training of midwives may be undertaken. The result of such regulation will unquestionably be an enormous improvement in the mortality and morbidity of obstetric cases.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Sixth Month—Third Weekly Meeting

DISEASES OF THE GALL-BLADDER AND DUCTS

SIMPLE CHOLELITHIASIS: Diagnosis, pain, colic, gastric symptoms, jaundice, fever, tumors. Differential diagnosis.

COMPLICATIONS OF CHOLELITHIASIS: (a) Obstruction of cystic duct. (b) Obstruction of common duct. (c) Remote effects, (1) acute perforation, (2) fistulæ, (3) strictures of ducts, (4) adhesions and bands, (5) involvement of pancreas. Symptoms and diagnosis of each.

NON-CALCULOUS CHOLECYSTITIS: (a) Acute phelgmonous, (b) subacute, (c) chronic. Diagnosis and surgical treatment of each.

CARCINOMA OF GALL-BLADDER AND DUCTS: Frequency, relation to gall-stones. Symptoms and diagnosis in (a) gall-bladder, (b) common duct.

Medicolegal

Examinations Should be by Impartial Physicians Appointed by the Court

The Court of Appeals of Kentucky says, in Keller & Brady Co. vs. Berry (121 S. W. R. 1009), a personal injury case brought by the latter party, that when the plaintiff was on the witness stand the defendant company proposed to have him examined then by two physicians whom it had present as witnesses. The plaintiff declined to submit to the examination unless required to do so by the court. The court offered to have him examined by an impartial physician to be named by the court. The defendant company thereupon withdrew its motion for an examination. There was no substantial error on the part of the court in this matter. The court has a discretion in such matters, and it did not abuse a sound discretion in refusing to require the plaintiff to submit to a personal examination by physicians of the defendant's company's own choosing. Such examinations should always be made by some impartial physician appointed by the court.

City Empowered to Create Office of Bacteriologist

The Supreme Court of Alabama says that State, on the relation of Sholl and others, vs. Duncan (50 So. R. 265) was a proceeding challenging the right of the said Duncan to exercise the functions of city bacteriologist, created by an ordinance of the city of Birmingham. The controversy related to the right of the municipality to create an office with the powers and functions conferred by the ordinance; the argument being that the ordinance was in contravention of the laws of the state, which was to say that Duncan, acting under the color of the ordinance, was wrongfully exercising the functions which, under the general law of the state, pertain to the health officer of the city of Birmingham.

It was conceded that Section 142 of the Alabama act of Aug. 13, 1907, confers on municipalities the power to adopt

ordinances to prevent the introduction of contagious, infectious or pestilential diseases, to establish and regulate a sufficient quarantine not inconsistent with the laws of the state, to adopt ordinances and regulations to insure good sanitary conditions in public and private places, and to prescribe the duties and fix the salaries and compensation for such health officials as they may deem necessary. This section is an amplification in one direction of the general power conferred by Section 80, by which municipal corporations are given power to adopt ordinances, not inconsistent with the laws of the state, to carry into effect or discharge the powers and duties conferred, and to provide for the safety, health, prosperity, morals, order, comfort and convenience of the inhabitants of the municipality.

Bacteriology is the science which investigates bacteria and other microbes, especially their life history and agency in the production of disease. Ordinances providing for bacteriologic investigation and research have a just and reasonable, not to say necessary, relation to the health and safety of communities. It will not be denied, therefore, that the general and special powers conferred by the two sections of the act last referred to are amply broad to justify the ordinance of the city of Birmingham creating the office of city bacteriologist.

Nor does the court consider that the act amendatory of the health and quarantine laws of the state, postdating the act of Aug. 13, 1907, known as the "Municipal Code Law," by two days, dealing with the subject of health and quarantine, must be held to repeal the power to appoint a bacteriologist, with such duties as are enumerated in the ordinance, which power is fairly implied in the municipal charter act.

The health and quarantine law and the municipal code law cover in part the same field so far as cities and towns are concerned. The fact that they were passed by the same legislature, and so nearly together, creates a strong presumption that no conflict was supposed to exist. The court finds no conflict in the letter of the two statutes. Nor does it think the duties imposed by the ordinance on the bacteriologist are of such a nature as to give rise to conflict between that official and the health officer provided for in the health and quarantine law. The former is nothing more than an agent for gathering information, as the ordinance shows. Such information will be valuable to the officers and people of the municipality in the conduct of its government within the limits of its unquestioned powers. It can in no wise curtail the powers of the health officer, nor interfere with their complete beneficial exercise, that one or a dozen bacteriologists appointed or elected by the city may cover the same ground for the purpose of getting information. The court discovers in the health and quarantine laws of the state no expressed or implied purpose to deny to a municipal corporation the authority to procure for the use of its officers and people, in the administration of their affairs, expert knowledge of things which may affect the safety, health and comfort of the community.

Wherefore a decree in favor of Mr. Duncan is affirmed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

January 22

1 *Subjective Fremitus as a Diagnostic Means; New Adjuvant in Determining the Localization and Magnitude of the Objective Fremitus in Chest Examinations. S. A. Knopf, New York.
2 St. Luke the Physician. J. J. Walsh, New York.
3 The Fungus, Diplodia, as a Possible Factor in the Etiology of Pellagra. H. S. Reed, Blacksburg, Va.
4 *New Method of Treatment of Phagedenic Chancroid and Chancre by Hot-Air. E. W. Ruggles, Rochester, N. Y.
5 Appendicitis from Viewpoint of the Clinician. M. H. Fussell, Philadelphia.
6 Obstetrics, Gynecology, and Abdominal Surgery. A. H. Wright, Toronto.
7 Use of the Killian Tubes in Dealing with Foreign Bodies in the Trachea and Esophagus. H. L. Swain, New Haven, Conn.
8 Psychogenesis of Some Reflex Neuroses. T. A. Williams, Washington, D. C.
9 Balanic Hypospadias Complicated with Simultaneous Intraurethral Chancre and Gonorrhea, and Idiopathic Low Specific Gravity of the Urine. H. F. L. Ziegel, New York.

1. Subjective Fremitus as a Diagnostic Means.—The patient is requested to make a humming sound with the mouth closed, and then he is asked whether he feels his voice vibrating either on the left or right side or where he feels the vibration most intensely. If there is a sufficient degree of consolidation on either side, the patient will feel the vibrations caused by his voice and indicate where he feels them. That is what Knopf terms subjective fremitus. The objective fremitus is brought out by asking the patient to pronounce the words twenty-two, ninety-nine or similar sounds in a bass voice, or letting him hum as for determining the subjective fremitus. The difference in objective fremitus in early tuberculosis is often so slight that Knopf has found the following method most helpful as an adjuvant: In placing the hand over the chest in any locality where differentiation is difficult, which is particularly frequent in incipient pulmonary tuberculosis most often located posteriorly in the apices, Knopf presses his forehead on the dorsal surface of his hand. The vibrations transmitted are thus more delicately perceived by the direct communication with the brain through the frontal bone.

4. Hot Air in Chancre and Chancroid.—Ruggles claims that his method of treatment of phagedenic chancroid is the first attempt to utilize the thermal death point of the bacteria as a means of combating this disease, and reports three cases in which this treatment proved very effective. He is convinced that much of the benefit obtained is due to the active hyperemia produced by the long-continued heat. That the effect of artificial hyperemia on bacteria is not merely inhibitory, but, through raising the local opsonic index, bactericidal also, has been thoroughly established by Bier and other investigators. This must be the explanation of the good effects in these cases, since the secondary pus cocci which predominated in both are not directly killed by the temperature employed, though their resistance may be weakened. This being the case, Ruggles thinks it probable that the hot air treatment will prove of the greatest value in all phagedenic processes of whatever nature or origin. The oven used by Ruggles is described fully.

Boston Medical and Surgical Journal

January 20

10 *Strength of the Uterine Scar After Cesarean Section. Experimental and Clinical Study. N. B. Mason and J. T. Williams, Boston.
11 Symptomatology Diagnosis and Treatment of Primary Apyogenous Angiocholitis. C. G. Cumston, Boston.
12 *Postoperative Pneumonia. E. H. Risley, Boston.
13 Use of Formalized Cultures of Typhoid Bacilli for the Agglutination Test. M. E. Morse, Boston.

10. Uterine Scar After Cesarean Section.—As the result of experimental work and study of the literature, Mason and Williams feel justified in drawing the following conclusions regarding the uterine scar after Cesarean section:

1. A carefully sutured and well-united scar will withstand any strain which can be endured by the uterine muscle.
2. Rupture of a Cesarean scar is always secondary to unusual weakness of the scar, dependent on imperfect consolidation.
3. The most frequent cause of imperfect consolidation is placing the deep stitches too far apart, or not including the entire thickness of the uterine muscle.
4. Location of the incision and suture of the placental site probably do not affect the strength of the scar.
5. Infection, in certain instances, plays a very important part in causing weakness of the cicatrix.
6. Catgut as a suture material is open to the objection that there is at least a possibility of the stitches becoming untied, and that certainly more cases of rupture have occurred after its use than after the use of silk.
7. As a corrollary to the foregoing conclusions, it seems evident that given a uterus which has been sutured with care to include the entire thickness of the muscular portion of the wall in each stitch, and to place the deep stitches close together throughout the entire length of the incision, using silk or linen, and in which there has been no evidence of sepsis during the convalescence, such a uterus may be subjected with safety to distention by a full-term pregnancy, or even, in the absence of mechanical indications for Cesarean section, to the strain of labor itself.

12. Postoperative Pneumonia.—Risley's paper is an analysis of the pulmonary complications of 1,000 consecutive laparotomies, including radical cure of hernia. The mortality in this series of laparotomies was 13 per cent. Risley found that postoperative pulmonary complications are most liable to develop in cases in which sepsis is present, and in which some

trauma has been done, not to the air passages, but to the peritoneum. Lung involvement was present in 3 per cent. of all of these cases before operation. Clean cases are nearly as liable to pulmonary complications as septic, but the mortality is practically *nil*, and the cases themselves are of atypical form and much less severe. Previous pneumonic processes do not light up again after ether. Lung complications are more common during the winter months. Flare-ups in tuberculous cases are fairly common. The exact percentage was not determined. Prophylaxis may be best carried out by: (a) a much more thorough preparation of the mouth before all operation—a ten-minute scrubbing of the teeth 3 times during the 25 hours previous to operation, followed by a thorough washing of the mouth and nasal passages and throat with such a solution as Dobell's is suggested; (b) the use of the Trendelenburg position in all prolonged operations when practical and when gravitation of septic material toward the diaphragm can be prevented by walling off; (c) the use of atropin and morphin subcutaneously one-half hour before etherization; (d) the use of the Crile method of anesthesia when practical, and in all mouth cases.

Medical Record, New York

January 22

14 Recognition and Treatment of Extrauterine Pregnancy. C. W. Barrett, Chicago.
15 *Simple and Inexpensive Portable Polygraph. W. N. Berkeley, New York.
16 *Care and Commitment of Insane Persons by Health Officers. W. L. Russell, New York.
17 *Adult Syphilis of the Lung. H. H. Pelton, New York.
18 Etiology and Underlying Causes of Pulmonary Tuberculosis. W. S. Mills, New York.
19 *Situs Viscerum Inversus Totalis. L. J. Pollock and E. B. Jewell, Dunning, Ill.

15. **Inexpensive Portable Polygraph.**—Berkeley's apparatus will record the apex beat, carotid or jugular pulse, or respiration. There are two receiving funnels, the ends covered with thin rubber dams; across one diaphragm is cemented a small block of wood which is laid against the vessel to be recorded. Two recording funnels are clamped with a bench-vise to a table, and connected with the receiving funnels by tight rubber tubes. These funnels are also covered with rubber dam, on one radius of which is cemented a small socket into which the recording lever fits. A clock laid on its face furnishes the drum mechanism, with a wooden cylinder, having three pins placed vertically along one line of its convex surface; to these pins the smoked paper is fixed. A wooden and a pasteboard box hold the whole apparatus which may be easily carried about.

16. **Commitment of Insane.**—Russell shows the advantages that would arise from the commitment and care of insane persons by the health officers of cities and country districts, instead of by policemen and constables, before their commitment to hospitals. The influence of the methods of handling and transportation of these patients by police officials is often deleterious to the welfare of the patients. They should be handled by nurses and physicians who better appreciate the mental conditions of such patients.

17. **Adult Syphilis of the Lung.**—Pelton's case was an instance of acquired syphilis of the lung in which was grafted on the luetic process an infection with tuberculosis. The positive reaction to the tuberculin injection pointed toward that possibility.

19. **Situs Viscerum Inversus Totalis.**—Pollock and Jewell give autopsy findings in a case of dementia paralytica, in which there was complete reversal of all abdominal and thoracic organs, not diagnosed before death.

Lancet-Clinic, Cincinnati

January 15

20 *The Problem of the Insane and the Defective. L. M. Crafts, Minneapolis.
21 *Elements of Success in Surgery. A. H. Cordier, Kansas City, Mo.
22 Diagnosis of Incipient Gastric Carcinoma. F. L. Rattermann, Cincinnati.
23 Widespread Peritoneal Infection Treated Successfully by the Fowler-Murphy Method. H. H. Hines, Cincinnati.

20. Abstracted in THE JOURNAL, Nov. 20, 1909, p. 1770.

21. Abstracted in THE JOURNAL, Oct. 30, 1909, p. 1505.

Northwestern Lancet, Minneapolis

January 1

24 *Poliomyelitis—Previous Epidemics. H. Sneve, St. Paul.
25 *Epidemic Poliomyelitis in Minnesota in 1908. A. S. Hamilton, Minneapolis.
26 Poliomyelitis; Report of Eighteen Cases. W. R. Ramsey, St. Paul.

24, 25. Abstracted in THE JOURNAL, Nov. 20, 1909, p. 1766.

American Journal of Medical Sciences, Philadelphia

January

27 *Pellagra and Some of Its Problems. J. N. Hyde, Chicago.
28 High Caloric Diet in Typhoid. H. A. Houghton, Bayside, L. I.
29 *Therapeutic Use of Bacterial Vaccines. E. R. Hoobler, New York.
30 *Present Status of Tuberculin Therapy. W. C. Voorsanger, San Francisco.
31 Adams-Stokes Disease with Complete Heart Block; A Conspicuous Lesion in the Path of the Auriculoventricular Bundle. L. F. Bishop, New York.
32 *Technic of Operations on Lower Portion of Ureter. C. L. Gibson, New York.
33 Suprapubic Prostatectomies. C. H. Chetwood, New York.
34 *Principles and Technic of Wassermann and Noguchi Reactions; Their Comparative Value to the Clinician. D. M. Kaplan, New York.
35 Study of the Alleged Presence of Tubercle Bacilli in the Circulating Blood. E. Burvill-Holmes, Philadelphia.
36 *Is Thromboangitis Obliterans Related to Raynaud's Disease and Erythromelalgia? L. Buerger, New York.
37 Four Cases of Cervical Rib, Two of Them Flail-like. A. P. Francine, Philadelphia.

27. **Pellagra and Some of Its Problems.**—Hyde discusses the phenomena of the disease as they have been recognized in this country, and some of the problems with which the students of pellagra in the United States apparently are confronted. The paper contains so much information that it cannot be abstracted. It is well illustrated and appended to it is a most complete bibliography of the literature on pellagra.

29. **Therapeutic Use of Bacterial Vaccines.**—Hoobler's cases may be briefly cited as follows:

Case 1.—Puerperal septicemia of forty days' duration; streptococci isolated from the blood; vaccine inoculations given; the temperature came to normal in two days; no further chills.

Case 2.—Bacteremia following mastoid disease; streptococci isolated from the blood; treatment by autogenous vaccine and operation; recovery.

Case 3.—Ulcerative endocarditis, pericarditis, and pleurisy with effusion; staphylococci isolated from the blood; vaccine inoculations resulted in these processes clearing up; for one month marked improvement took place, when the patient contracted lobar pneumonia and died.

Case 4.—Pyemia following appendicitis; liver abscess; blood cultures negative; *Bacillus mucosus capsulatus* isolated from the pus on the fortieth day after operation; the use of vaccines made from this organism followed by gradual fall of the temperature to normal and perfect recovery.

Case 5.—Postappendicular pyemia; abscess in the shoulder joint; vaccine made from pus; improvement after second inoculation; perfect recovery.

Case. 6.—Puerperal fever developing on the sixth day of the puerperium; blood culture negative; intrauterine culture showed streptococci; stock streptococcic vaccine from a streptococcic septicemia was given, and the temperature came to normal, but rose on the second day; autogenous vaccine was then given, and the pulse, temperature, and respirations came to normal.

Case 7.—Pelvic abscess; *Bacillus coli communis* isolated from the pus; after many autogenous inoculations the temperature came to normal.

Case 8.—Infected foot, followed by cellulitis of the leg and later erysipelas; streptococci found in the pus from the foot; a stock vaccine used; after two inoculations temperature came to normal.

30. **Present Status of Tuberculin Therapy.**—Voorsanger does not regard tuberculin as a specific in tuberculosis, but only a valuable adjunct to the hygienic and dietetic therapy of the disease.

32. **Operation on Lower Portion of Ureter.**—In Gibson's opinion, the ideal method of performing operations on the lower ureter should fulfil the following conditions: The incision of the abdominal wall should be of such size and situation as to give an ample exposure for the easy recognition of the ureter, the necessary manipulations, and security from injury to the other pelvic structures, particularly the iliac vessels. The incision should be extraperitoneal. It should be possible to make the ureter so freely accessible that any incision in it can be as easily and accurately repaired as a lesion of the intestine. There should be no unnecessary trauma or malhandling of the tissues, so that the completion of the operation should leave a perfectly dry field, doing away (when the continuity of the ureter has been restored) with

the necessity of drainage—a prophylactic measure against subsequent hernia. The incision of the abdominal wall should be so planned as to produce the least damage, allowing when it is closed without drainage a firm union without risk of hernia. Finally, the whole operation should be so simple, so free from annoying hemorrhage or other pitfalls, that it can be performed without undue waste of time—half an hour or less. These ideals, Gibson believes, can be realized by a suitable exposure of the ureter and the lower pelvis by an incision which he has used in probably a hundred laparotomies. The skin incision runs from the mid-line about a finger's breadth above the pubes, horizontally outward nearly parallel to Poupart's ligament at first and curves rather sharply upward at its mid-point to end about opposite the anterior superior spine of the ilium. This incision is deepened in the same line through the aponeurosis of the external oblique and the internal oblique muscle—the latter is the only structure which suffers any real damage, and only to a slight degree, for the lower part of the incision runs about parallel to its fibers, only the ascending leg cuts across a small part of these fibers. The incision stops short of the transversalis, which is not disturbed at all. With efficient retraction of the upper flap the external border of the rectus muscle is identified and the fascia of the transversalis is then divided by a vertical incision close to and parallel to the rectus—that is, at right angles to the original incision. Two retractors are then inserted, the outer one retracts the cut edge of the transversalis outward, the other pulls the rectus muscle well toward the mid-line.

So ample is the space and view, that the whole hand can be introduced under the control of the eye. The ureter is released from its surroundings and easily brought to the external level of the wound. In this way it can be handled readily and freely. The wound is closed without drainage. The transversalis fascia is sutured separately with catgut. Continuous sutures of medium-sized catgut (preferably moderately chromicized) are used for the combined internal and external oblique layer. A few interrupted fine catgut sutures are used for the superficial fatty layer. Very fine continuous silk sutures are used for the skin.

34. **Wassermann and Noguchi Reactions.**—Kaplan found that the Wassermann reaction gives negative results in about 7 per cent. of positive serums, treatment periods excluded. The Noguchi method gives 8 per cent. of positive results in clinically well-established non-syphilitic individuals. The positive reactions in these cases are ordinary reactions and cannot be said to be remarkably strong.

36. **Thromboangiitis Obliterans.**—Thromboangiitis obliterans is a clinical and pathologic entity characterized by thrombotic occlusion of arteries alone or of arteries and veins, giving subjective manifestations, chief among which are pain and the peculiar symptoms of intermittent claudication, and presenting objective phenomena, the most important of which are redness in the dependent position of the limb, marked blanching in the elevated position, evidences of arterial occlusion in the form of pulseless vessels, trophic disturbances of moderate extent and of even grave consequences often terminating in gangrene of one or both lower extremities. Buerger says that we possess no data which tend to show that either erythromelalgia or Raynaud's disease is dependent on organic obliteration of arteries or veins. Clinically, thromboangiitis obliterans may show many variations from a set form, and this accounts for the fact that the true condition is so frequently overlooked. Associated migrating phlebitis and symptoms of intermittent claudication are but two of a number of phases that may stand out as striking features. Individual characteristic symptoms of thromboangiitis obliterans do not justify us in establishing a relationship between this disease and others in which somewhat similar phenomena may be found.

Wisconsin Medical Journal, Milwaukee

December

38 *Transactions of the Sixty-third Annual Meeting of the State Medical Society of Wisconsin.

38. This issue is devoted entirely to the transactions of the state society for 1909.

Atlanta Journal-Record of Medicine

December

39 Cure of Traumatic Neurosis. T. A. Williams, Washington, D. C.
40 Pellagra in Metcalf, Ga. W. W. Jarrell, Thomasville, Ga.
41 Prognosis and Treatment of Pellagra. C. H. Lavinder, U. S. P. H. and M.-H. S.
42 Laceration of the Scrotum. S. B. Little, Colbert, Ga.

Journal of the Oklahoma State Medical Association, Muskogee

January

43 Differentiation of Fractures of the Neck of the Femur. S. R. Cunningham, Oklahoma City.
44 Changes of Metabolism in Diabetes Mellitus. R. H. Harper, Afton.
45 *Supernumerary Ovary. F. W. Noble, Guthrie.
46 Three Ectopic Pregnancies and Three Operations in the Same Patient in Four Years. J. H. White, Muskogee.
47 Value of Bismuth-Vaselin-Paste Treatment in Tuberculous Sinuses and Abscess Cavities. A. A. West, Guthrie.
48 Etiology, Pathology and Theories of Glaucoma. E. F. Davis, Oklahoma City.
49 *Case of Emboli. T. H. Flesher, Edmond.
50 Treatment of Fracture of the Clavicle. L. F. Watson, Oklahoma City.

45. **Supernumerary Ovary.**—In Noble's case a well-developed ovary about the size of a wren's egg was situated about an inch posterior and inward from the left ovary which microscopically consisted of normal ovarian tissue.

49. **Air Embolism.**—In an attempt to produce an abortion, quinin was insufflated into the uterine cavity, through a soft rubber catheter passed for that purpose. The woman immediately became unconscious and died about fifteen hours later. The diagnosis made of the cause of death was air embolism, gaining entrance by way of the uterine sinus and carried to the right side of heart, producing a thrombus or going still farther by way of the pulmonary artery to the lungs and producing edema of the lungs.

Texas State Journal of Medicine, Fort Worth

January

51 Ovarian Fibroid. E. G. Mathis, Manor.
52 *Myasthenia Gravis in Lymphatic Leucemia. M. L. Graves, Galveston.
53 Toxemia of Pregnancy, with Special Reference to the Preeclamptic Stage. W. L. Crosthwaite, Holland.
54 *Tuberculosis of the Uterus, Ovaries and Fallopian Tubes. K. H. Aynesworth, Waco.
55 Diagnosis of Obscure Forms of Nephritis. A. E. Austin, Galveston.
56 Belladonna Atropin. I. L. Van Zandt, Fort Worth.
57 Why So Many Puerperal Convulsions? S. P. Vinyard, Amarillo.
58 Teething. W. Shropshire, Yoakum.
59 To Lengthen Human Life. C. E. Cantrell, Greenville.
60 *Fragilitas Ossium. J. B. Thomas, Midland.

52. **Myasthenia Gravis in Lymphatic Leucemia.**—Graves reports a case presenting the symptom-complex of myasthenia gravis dependent on, or associated with, the toxemia of lymphatic leucemia, in a man aged 41.

54. **Tuberculosis of Uterus and Adnexa.**—Aynesworth reports a case of tuberculosis of the Fallopian tubes, with extension to the peritoneum; simple fungous endometritis; intraglandular papillary cystic endocervicitis with inflammation and erosion of the cervix; cystic degeneration of the ovaries, occurring in a woman 34 years old. A radical operation was done. Recovery was rapid; health was restored, and to date, ten months later, there is no evidence of a return of the trouble.

60. **Fragilitas Ossium.**—At the age of 67, in December, 1908, on arising from his chair at the dinner table, the patient, a man, was seized with sudden pain in the leg between the knee and hip; he was assisted to his bed and the family physician summoned, who diagnosed fracture at about the junction of the middle and upper third of the left femur. After consultation and careful investigation it was decided that the fracture occurred probably as a result of a gunshot injury sustained about forty-five years before; the usual treatment for such cases was instituted, including extension, etc., but without obtaining any apparent bony consolidation; two months later, while lying quietly on his back in bed, the man was again seized with violent pain accompanying fracture of the opposite limb at about the same location; in this instance, however, it was clearly evident that the fracture was due to muscular contraction exerting its influence on bone unduly brittle; this

fracture, also, was treated in splints with extension, but without the slightest union whatever. It was not until the second fracture had occurred that it was possible to diagnose the condition definitely as fragilitas ossium.

Iowa Medical Journal, Des Moines

December

61 Prevention of Adhesions in Abdominal Surgery. J. C. Webster, Chicago.
62 Progress in Obstetrics and Gynecology. W. R. Whitels, Iowa City.
63 Extrauterine Pregnancy. L. C. Kern, Waverly.
64 Cystoscopic Diagnosis of Conditions Peculiar to the Female Bladder. B. S. Barringer, New York.
65 *Dysmenorrhea. C. W. Wahrer, Fort Madison.
66 Protracted Labor. H. E. Pfeiffer, Cedar Rapids.
67 Notes from Obstetric Practice. J. E. Luckey, Vinton.
68 Infections in the Puerperium. J. Donohue, Burlington.
69 Pellagra. F. P. Schultze, Marengo.
70 Insufflation and Aspiration in Middle-Ear Diseases. P. R. Wood, Marshalltown.

65. Abstracted in THE JOURNAL, July 10, 1909, p. 139.

Journal Arkansas Medical Society, Little Rock

December

71 *Appendicostomy in Treatment of Epilepsy. J. P. Runyan, Little Rock.
72 Neuroparalytic, or Trophic Ulcer Treated Surgically. R. C. Dorr, Batesville.
73 Pneumococcus Endocarditis. C. H. Hoffman, Little Rock.
74 Too Much Operative Gynecology. J. W. Meek, Camden.
75 Therapeutic Value of Some of the Eclectic Modalities. W. T. Lowe, Pine Bluff.

71. **Treatment of Epilepsy.**—Clinical study of all idiopathic cases of epilepsy show two conditions constantly present, one constipation, favoring stagnation of intestinal contents and hence putrefaction and production of toxins. Second, overeating or gluttony. Hence Runyan is convinced that appendicostomy in well-selected cases followed by thorough irrigation of the intestines, the irrigation being continued for a sufficient length of time, one or two years in average cases, will be the means of curing a large number of patients and of improving the condition and diminishing the frequency of seizures in those not entirely relieved.

Memphis Medical Monthly

December

76 Some of Our Relations. W. H. Deaderick, Marianna, Ark.
77 *Impress of English Thought on Medicine. F. A. Jones, Memphis.
78 Experience in Treatment of Pernicious Malaria. S. W. Glass, Dublin, Miss.
79 Modern View of Fractures. W. S. Lawrence, Memphis.
80 Acute Glaucoma from the Viewpoint of Those Other than Ophthalmologists. E. C. Ellett, Memphis.

77. Published in the *Southern Medical Journal*, November, 1909.

American Journal of Physiology, Boston

January

81 *Experimental Glycosuria—Distribution of Glycogenolytic Ferment in the Animal Body, Especially of the Dog. J. J. R. MacLeod and R. G. Pearce, Cleveland.
82 *Study of the Concentration of Antibodies in the Body Fluids of Normal and Immune Animals. J. R. Greer and F. C. Becht, Chicago.
83 *Acapnia and Shock—Fatal Apnea After Excessive Respiration. Y. Anderson, New Haven, Conn.
84 Effect of Severing the Vagi or the Splanchnics or Both on Gastric Motility in Rabbits. J. Auer, Boston.

81. **Experimental Glycosuria.**—Macleod and Pearce directed their experimental investigation to the determination of the question whether the enzyme in the liver which destroys glycogen is contained in the blood and serum or is fixed in the liver cells. They found that the washed liver does not yield the maximum of diastatic activity until the cells are broken up so as to set free the ferment contained in them. The blood and lymph contained more ferment than the liver tissue, but whether the ferment in the liver tissue is manufactured by the cells or is by them from the blood is left unsettled. Prolonged perfusion (15 minutes) of the liver with isotonic saline solution does not cause any diminution in the glycogenolytic power of an extract of the organ. This is taken as evidence against the view that the glycogenolytic activity of blood-free liver is due to lymph. The amount of glycogenase in blood, serum, and in liver extracts was found to decrease in the dog, pig, rabbit and lamb in the order named, although the relative activity of serum and liver extracts did not always run parallel. In the various organs the greatest amount of glycogenase is found in the pancreas, then the serum, and the liver next.

82. **Concentration of Antibodies.**—Greer and Becht studied the concentration of various antibodies in the different body fluids on cats and dogs with the following results: In the normal dog hemolysins and agglutinins for rabbit corpuscles are found in the serum, neck lymph, and thoracic lymph; they are not found in the cerebrospinal fluid nor aqueous humor, but agglutinins may be present in the pericardial fluid. In most cases the concentration diminishes in the following order: Serum, thoracic lymph, neck lymph, pericardial fluid, but in some cases thoracic lymph precedes serum. In dogs immunized to a heterologous blood, hemolysins and agglutinins are found in the same fluids as in the normal animal, but hemolysins are usually found in the pericardial fluid and agglutinins may be found in the cerebrospinal fluid and aqueous humor. The concentrations vary in the various fluids as in the normal animal.

The addition of guinea-pig serum as complement in non-hemolytic doses increases greatly the hemolytic power of the serum, neck lymph, thoracic lymph, and pericardial fluid; therefore in the course of immunization the amboceptors are developed in all the body fluids in which they are normally found more rapidly than is the complement. Cerebrospinal fluid and aqueous humor do not become hemolytic even on the addition of complement, therefore they do not contain amboceptors.

Dogs do not readily develop precipitins for rabbit serum. Agglutinins for *Bacillus typhosus* are present in normal cats in the same fluids as the hemoagglutins and generally the same is true of normal dogs. In immunized dogs and cats the concentration is increased but not more than traces are found in the cerebrospinal fluid and aqueous humor. In the passively immunized animal the agglutinins pass readily from the blood stream into the lymphs. They do not pass into the pericardial fluid, cerebrospinal fluid, or aqueous humor. The time required for this passage is relatively short, being as complete in four and one-half hours as in twenty-four hours. Bacterial opsonins and hemopsonins are found in the body fluids of normal animals. The concentration varies substantially as for agglutinins but they are rarely found except in traces in the pericardial or cerebrospinal fluid or in the aqueous humor. Immunization by repeated subcutaneous injections does not increase the opsonins to any very marked extent but the concentrations of hemopsonins in the body fluids can be thus increased.

83. **Acapnia and Shock.**—Henderson reaches the following conclusions: Voluntarily forced breathing in man, so far as the experiment can be safely carried, induces symptoms similar to those of shock. Death from failure of respiration would probably result from vigorous voluntary hyperpnea for fifteen or twenty minutes. Pain, ether-excitement, sorrow, fear and other conditions inducing shock, involve excessive respiration. Excessive artificial respiration, applied to dogs for from twenty-five to thirty minutes, is followed by apnea so prolonged that the heart fails, after seven or eight minutes, for lack of oxygen. The inactivity of the respiration center is solely due to the depletion of the body's store of carbon dioxid. During the anoxyemia after the second minute of apnea the products of incomplete tissue combustion accumulate in the blood. If the acapnia is not too intense, this acidosis furnishes a potent aid in restoring spontaneous breathing. The alternate accumulation and oxidation of acidosis substances in the blood induce Cheyne-Stokes breathing. Administration of carbon dioxid gas during apnea induces immediate return of natural breathing. Administration of oxygen by the Volhard method affords ideal conditions for recovery from acapnia, and prevention of asphyxial acidosis. Deep anesthesia diminishes the sensitiveness of the respiratory center to the influence of carbon dioxid, so that a subject which has previously developed acapnia inevitably ceases to breathe as soon as the third stage of anesthesia is induced. In any less quantity, however, ether tends to prevent apnea, unless its influence as a "respiratory stimulant" is neutralized by morphin.

Vermont Medical Monthly, Burlington

December

85 A Defence of Sanity. F. S. Lee, Burlington.
86 Laboratory Diagnosis. E. A. Colton, Burlington.
87 Hydrophobia and the Pasteur Method of Immunization. W. H. Lane, Burlington.

Cleveland Medical Journal

January

88 Coagulation of Blood. W. H. Howell, Baltimore.
89 *Tests of Insanity in the Criminal Court. W. A. Carey, Cleveland.
90 *Idem. A. B. Howard, Cleveland.
91 Essentials in Treatment of Non-Ambulatory Cripples Deformed by Infantile Paralysis. H. O. Feiss, Cleveland.
92 Smith Cataract Extraction of the Capsule. A. R. Baker, Cleveland.
93 Hemorrhagic Varicella. R. W. Elliott, Cleveland.

89. Tests of Insanity.—It is Carey's opinion that much of the controversy between the medical and legal professions as to the proper test of responsibility in cases of insanity has been brought about by the fact that the members of the medical profession are the product of schools which, the world over, in general follow certain rules for their guidance and which rules can, with no lack of propriety, be applied in different localities; whereas the administrators of the law must adjust themselves to the needs of the different communities in the same degree as different communities vary in their law.

90. Id.—Howard emphasizes the fact that the physician in making his examination has only the medical points in the case to consider. That is to say, he has nothing whatever to do with the outside circumstances surrounding the act, he has to determine only the condition of the brain cells, so that it matters not what the case may be or whether it is due to influences of heredity. In the case of traumatism, syphilis, alcoholism, epilepsy, dissipation, excesses, tumors or any other known cause the question is: Are the brain cells properly performing their functions? If the brain cells are wholly diseased and abnormal the individual is irresponsible.

Archives of Pediatrics, New York

December

94 Etiology of Scarlet Fever. A. Hand, Philadelphia.
95 Municipal Control of Scarlet Fever. M. Ostheimer, Philadelphia.
96 Complications of Scarlet Fever. S. S. Woody, Philadelphia.
97 Difficulties in Diagnosis of Scarlet Fever. J. F. Schamberg, Philadelphia.
98 Treatment of Scarlet Fever. D. J. M. Miller, Atlantic City, N. J.
99 Casein Curds in Infants' Stools. F. B. Talbot, Boston.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

January

100 *Terminal Events in Gall-Stone Disease. C. N. Smith, Toledo, O.
101 Three Years of Gynecology and Obstetrics in the United States. J. W. Bovée, Washington, D. C.
102 *Climacteric Hemorrhages. J. R. Goodall, Montreal.
103 Unicornate and Bicornate Uterus. A. Brothers, New York.
104 *Fibrosis as a Cause of Preclimacteric Uterine Hemorrhage. M. Rabinovitz, New York.
105 Is the Routine Administration of the Preoperative Purge Defensible? E. Walker, Evansville, Ind.
106 Intrapartum Vaginal Myomectomy for Intraperitoneal Fibroids Obstructing Labor. K. I. Sanes, Pittsburg.
107 Cesarean Section, Abdominal and Vaginal, Compared and Contrasted. M. F. Porter, Fort Wayne, Ind.
108 Methods of Drainage in Pelvic and Abdominal Surgery. J. F. Baldwin, Columbus, O.
109 *Postpartum Hemorrhage. D. H. Stewart, New York.
110 Hematoma of Abdominal Wall Simulating a Desmoid Tumor. S. Wiener, New York.
111 Caries of the Hyoid Bone. J. E. Cannaday, Charleston, W. Va.
112 *Thrush. H. P. de Forest, New York.

100. Terminal Events in Gall-Stones.—Smith says that because of the erroneous statement, based on conclusions drawn without warrant from the post-mortem examinations, and so frequently repeated in the literature of cholelithiasis, to the effect that in the great majority of instances, gall-stones are unproductive of either symptoms or serious complications, the impression that, as a rule, gall-stones are void of a serious danger has obtained widespread credence. This, together with the fact that the diagnosis of gall-stones seldom has been made prior to the onset of complications has resulted in gall-stone surgery becoming largely the surgery of terminal events. Occlusion of the cystic duct from inflammation excited by the irritation of gall-stones as well as the direct blockage of the duct by stone, so frequently rendered permanent by contraction of the inflamed duct about the offending concretion, must be looked on as a terminal event in the progress of cholecystitis, itself a complicating and comparatively late event in gall-stone disease. The still later sequential phenomena of hydrops, empyema, gangrene ulceration, perforation and rupture of the gall-bladder, as well as sclerosis, contraction and obliteration, and malignant disease, are terminal events of a higher degree. From observation and from a study of the literature of the subject, Smith is convinced that the frequency with which rupture of the gall-bladder occurs as a terminal event in gall-stone disease is scarcely appreciated. In his opinion, these cases are commonly diagnosed as peritoneal infection from appendicitis, operated on as such and so recorded, unless gall-stones, correcting the diagnosis, are found in the peritoneal cavity.

102. Climacteric Hemorrhages.—The treatment of climacteric hemorrhages according to Goodall resolves itself into the prophylactic, palliative and operative. The prophylactic treatment is directed toward the prevention or removal of all the conditions which leave the uterus in a state of subinvolution. That is, a more careful routine examination of the placentas and membranes to see that everything has come away; careful asepsis, and later a careful examination into the causes of a prolonged lochial discharge; and finally, a careful examination of patients some weeks after labor to ascertain that conditions are normal. A persistent retroversion after labor Goodall looks on as a very frequent cause of subinvolution and later of chronic metritis. Palliative treatment consists in rest, physiologic as well as physical, and the use of the various ecbolics and hemostatics. Goodall says that he has seen little or no effect except that which rest alone will bring about. Massage and tonics are indicated and not infrequently return of general strength is associated with a diminution of the loss of blood. Operative treatment may be divided into minor operative measures and the radical cure. In cases in which the endometrium is markedly hypertrophic, doubtless the results from curettage are very great. The course to be adopted will differ with the class of patients. Among the leisure classes the patient may be advised to undergo a curettage and repair of the cervix in the hope of an improvement of the symptoms. If the curettage yields but a little or no endometrium the chances of improvement are very slight and hysterectomy under those conditions is imperatively demanded. The results from hysterectomy are sure and satisfactory. Whether the procedure will be abdominal or vaginal will depend entirely on the nature of the case and the ability of the surgeon.

104. Preclimacteric Uterine Hemorrhage.—Rabinovitz is of the opinion that preclimacteric uterine hemorrhage is due to an hyperdevelopment of fibrous connective tissue in the uterine walls, which takes the place of the exhausted and finally atrophied muscle fibers. With the diminution of muscle tissue and elastic fibers there ensues a loss of contractility, and this loss becomes greater after each succeeding pregnancy, until uterine compensation is entirely broken. The menorrhagia and metrorrhagia in this class of cases is not due to friability or atheromatous condition of the blood-vessels, but to an insufficiency and inability of the uterine muscles to contract and close the gaping arteries and sinuses. The blood-vessel changes are secondary to those taking place in the muscularis, as proven by the invasion of fibrous changes from without into the adventitia, by the compensatory hypertrophy of the media, and by the normal state of the intima. The condition of fibrosis uteri is not the sequel of inflammatory reactions, but the result of biologic changes.

109. Postpartum Hemorrhage.—Stewart urges that the term postpartum hemorrhage should be applied solely to a flow of blood after delivery, 1,000 c.c. or more in amount, which blanches the lips, produces air hunger, and which gives rise to the pulse symptoms of severe hemorrhage. Other bleedings occurring under similar circumstances are properly named "excess bleeding," "threatened postpartum" or "traumatic hemorrhage" as the case may be. A good precaution

is to allow the mother forty-five minutes rest after delivery of the child. A hemorrhage occurring some hours after delivery may be checked by the administration of an ounce of vinegar by the mouth. If this fails a hypodermic injection of vinegar into the uterine wall is an efficient means of meeting the emergency. A Rose bandage will hold the patient safe, after bleeding has been checked. Threatening or actual hemorrhage at the immediate completion of labor may be forestalled or checked by the application of chloroform to the interior of the uterus, without the sticky black gum consequent on the use of Monsel's solution or other iron preparations for the same purpose.

112. **Thrush.**—DeForest reports five cases of this now rare affection. The first case was one of thrush of mouth, stomach, and small intestines, with multiple ulcers of the small intestine, multiple punctate intestinal perforations, and intestinal and intra-abdominal hemorrhage. When the child was two weeks old, the mother noticed white spots in the mouth, but was told by the nurse that this was curdled milk and that they were unimportant. The care of the mouth and prophylactic measures had been entirely abandoned. The baby had been given a so-called "comfort" to hold in the mouth most of the time, in spite of the fact that thrush is a disease of the mouth that results from the use of a dirty nipple or bottle, or a much treasured but filthy comforter. The child died after six weeks. In the second case only the mouth was involved. The patient recovered. The third case, thrush of the mouth, terminated in thrush septicemia and death. The fourth case, thrush of the vulva and vagina, occurred in a woman 23 years old. The fifth case, thrush of the nipple, occurred in a woman 37 years old.

Montreal Medical Journal

December

113 Tonsils and Adenoids. C. M. Stewart, Toronto.
114 Action of Arseno-Phenyl-Glycin on Trypanosoma Brucei. R. P. Campbell and J. L. Todd, Quebec.
115 Management of Normal Labor. D. J. Evans, Montreal.
116 Transtrochanteric Osteotomy. A. M. Forbes, Montreal.
117 Coccyodynia. A. L. Smith, Montreal.
118 Myasthenia Gravis. C. K. Russel, Montreal.
119 Insanity in Immigrants. P. H. Bryce, Ottawa, Canada.
120 Sacroiliac Strain. J. A. Nutter, Montreal.
121 Cholesteatoma of the Middle Ear. Radical Mastoid Operation Without Removal of the Cholesteatoma Matrix. (Siebenmann's Method.) E. H. White, Montreal.
122 Acute Anterior Poliomyelitis with Autopsy. C. K. Russel, Montreal.

Mississippi Medical Monthly, Vicksburg

January

123 Work of the Tri-County Medical Society. J. H. Johnson, Brookhaven.
124 Phases of Ectopic Gestation. B. Malone, Memphis, Tenn.
125 Nausea and Vomiting. J. S. Brooks, Robinsonville.
126 Diagnosis of Chronic Gonorrhea. B. H. Durley, Aberdeen.

Journal of the Kansas Medical Society, Kansas City

December

127 Present Status of Serotherapy. S. A. Johnson, Topeka.
128 Rupture of Uterus, Parovarian Cyst; Direct Inguinal Hernia, and Unruptured Tubal Pregnancy. R. C. Lowman, Kansas City.

Interstate Medical Journal, St. Louis

January

129 Current Conceptions of Hysteria. W. A. White, Washington, D. C.
130 *Practical Points in Office Treatment of Retrodisplacement of the Uterus. H. S. Crossen, St. Louis.
131 Tumors of the Parotid Gland. F. Reder, St. Louis.
132 *Two Rare Ophthalmic Cases. J. M. Ball, St. Louis.
133 Habitual or Recurrent Dislocation of the Patella. A. E. Horwitz, St. Louis.

130. **Retrodisplacement of Uterus.**—It is clearly shown by Crossen that operative treatment is required in the majority of cases. Of the patients sent to him for retrodisplacement in by far the larger proportion operation is indicated without question. In a considerable proportion of the remaining cases a trial of non-operative measures shows that they are inadequate, and then operation is employed. Hence, it is only in a small proportion of cases of retrodisplacement that office treatment is found to be wholly satisfactory. But in that small proportion of cases it is the preferable treatment, either because it gives complete relief and thus obviates operation, or because it gives partial relief where operation is impossible for the reason that the patient refuses operation, or is not in physical condition for it.

132. **Rare Ophthalmic Cases.**—The cases reported by Ball are as follows: 1. Hydrophthalmus, trauma, dislocation of the eyeball. 2. Flat sarcoma of the choroid. The interesting feature of this case is the shape of the new growth. The specimen shows a flat, whitish, jelly-like elastic mass, situated between the retina and sclera. The retina is detached from the optic nerve to the ora serrata.

Long Island Medical Journal, Brooklyn

December

134 Mastoiditis in Scarlet Fever and Measles. H. A. Alderton, Brooklyn.
135 Acute Gastric Dilatation as a Postoperative Complication. J. C. MacEvitt, Brooklyn.
136 Visceral Manifestations of the Neuroses. A. C. Brush, Brooklyn.
137 Preventive and Constructive Medicine. A. E. Shipley, Brooklyn.

New Mexico Medical Journal, East Las Vegas

December

138 Improved Methods for the Examination of Sputum and Blood in Relation to Tuberculosis. F. T. B. Fest, Las Vegas.
139 The Practicing Physician and His Care of the Consumptive. J. W. Lawn, Lincoln.
140 Eyestrain: Its Diagnosis and Treatment. F. E. Tull, Albuquerque.

New Orleans Medical and Surgical Journal

January

141 Malaria. J. J. Robert, Baton Rouge.
142 Random Medical Notes in Europe. G. Dock, New Orleans.
143 The Pure Food Laws of Louisiana, Particularly in Reference to Physicians and Druggists. H. P. Jones, New Orleans.
144 Esophageal Stricture Treated by Sling-Shot of Various Sizes with Excellent Results. C. W. Allen, New Orleans.
145 Plastic Surgery of the Face. C. W. Allen, New Orleans.
146 Technic of Suprapubic Prostatectomy. S. P. Delaup, New Orleans.
147 Value of the *x*-Ray in the Diagnosis of Urinary Calculus. L. B. Crawford, New Orleans.
148 *Substitution of Muscle for Tendon Achilles. A. C. King, New Orleans.
149 *Postoperative Insanity. T. P. Lloyd, Shreveport, La.
150 Chronic Pancreatitis: Three Cases Surgically Treated. E. M. Williams, Patterson, La.
151 Diagnosis and Treatment of Adult Pott's Disease. E. S. Hatch, New Orleans.

148. Abstracted in THE JOURNAL, May 29, 1909, p. 1783.

149. **Postoperative Insanity.**—Lloyd believes that the great majority of cases of postoperative insanity are due to inherent congenital mental instability. Aside from a predisposition, there is a complex condition due to the action of several variable etiologic factors, including: anxiety before operation, the anesthesia, the shock, the loss of blood, the pain, the injury to nerve trunks, the toxic action of antiseptics, postoperative infections, the loss of certain organs which influence metabolism, etc. It is well known that after operations for cataract in old people hallucinatory confusion is not uncommon. Of course, old age predisposes, especially when there is a senile arteriosclerosis, and it is possible that the stay in the dark room after such operation sometimes plays a part. Surgeons should learn to look carefully for degenerative stigmata, and other signs of a neuropathic constitution. And when such a condition is suspected they would not act wisely by deferring an operation when possible until the patient's state of nutrition can be put in first-class condition and any disorder of the nervous system overcome.

Buffalo Medical Journal

January

152 *Treatment of Prolapsus Uteri, with Special Reference to the Author's Operation for Ruptured Perineum. H. E. Hayd, Buffalo.
153 Surgical Treatment of Gall-Stones and Inflammations of the Biliary Tract. M. B. Tinker, Ithaca, N. Y.
154 Postoperative Tetanus: M. M. Lucid, Cortland, N. Y.
155 The Antituberculosis War and the Red Cross Christmas Stamp—An Appeal. B. A. Knopf, New York.

152. **Treatment of Prolapsus Uteri.**—Hayd's operation for rectocele and ruptured perineum consists of a free posterior colporrhaphy and perineorrhaphy and the taking up of the pelvic fascia and levator ani muscle where they are torn, and the sewing up of the various structures from above downward in the direction that these tears take during parturition. This sewing process is commenced high up in the vagina and is continued downward until the whole fascia and levator ani muscles are perfectly approximated. The bulging rectum is turned in on itself and its lumen is lessened by taking up the

excess with a few stitches of catgut. Then the vaginal mucous membrane is brought together by interrupted sutures to the introitus and the perineal edges of the wound with silkworm gut; the most anterior suture also takes in, not only the skin, but the lowest part of the opposed vaginal sides, which may be called the crown stitch. It will now be seen that the vagina is lengthened, and its horizontal course changed to an oblique one, making a strong full perineal body, which any effort at coughing or straining will not displace.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

January 8

1 The Medical Student and his Curriculum, from a Teacher's Point of View. J. B. Hellier.
2 Tumors of the Brain and their Surgical Treatment. H. Cushing.
3 Congenital Intestinal Obstruction. N. I. Spriggs.
4 Nature and Treatment of Angina Pectoris. A. Morison.
5 Mosquitoes with Reference to Immigration and Horse Sickness. A. Balfour.
6 *Recent Researches on the Anatomy of the Heart. A. Keith, and I. MacKenzie.
7 Simultaneous Suppurative Appendicitis and Perforated Gastric Ulcer. C. A. Moore.
8 Poisoning by Massive Doses of Trional; Recovery. J. S. Mackintosh.
9 Simple Apparatus for Producing Rhythmic Variations in Electric Currents. N. E. Aldridge.
10 The Circulatory System. H. Campbell.

6. **Anatomy of the Heart.**—The authors' investigations have made certain that the single strand of muscular communication now known as the auriculoventricular bundle is peculiar to the mammalian heart. One of the chief results of their investigation has been to impress on them the necessity of studying the special musculature of the heart in its relation to the extraordinary abundant nerve-supply of that organ. They are also of the opinion that an entirely fresh description of the nerves to the heart is necessary, and that the fundamental differentiation must be into those nerves which supply the venous base or commencement of the heart (derived from the lower cervical sympathetics) and those which supply the terminal end or arterial base of the heart. It is those nerves which end in the venous base, which appear to exercise the inhibitory and accelerating effects on the heart through the specialized nodal system.

British Medical Journal, London

January 8

11 *Diagnosis and Treatment of Acute Inflammations of Upper Abdomen. A. W. M. Robson.
12 Rarer Associations of Gall-Stones and Biliary Obstruction. T. Carwardine.
13 *Frequency of Adenocarcinoma of the Body in Fibroid Tumors of the Uterus. J. M. M. Kerr.
14 Treatment of Chronic Oöphoritis and Associated Conditions. T. Cameron.
15 Ectopic Fetation: Laparotomy: Diffuse Peritonitis: Recovery. J. Gardiner, and H. W. Webber.
16 Retained Menses Relieved by Operation. J. T. Hartill.
17 Excessive Liability of European Women in Africa to Trypanosomiasis. P. Manson.
18 *One Hundred Operations for Carcinoma of the Breast. P. Leech.
19 *Treatment of Chronic Duodenal Ulcer. E. C. Hort.
20 The Poor Law and the Medical Profession. J. M. Rhodes.

11. **Acute Inflammations of Upper Abdomen.**—Acute peritonitis of the upper abdomen may be dependent on disease starting in the stomach, duodenum, jejunum, colon, gall-bladder, bile ducts, pancreas, liver, spleen, upward displaced appendix, kidneys, or inflamed lymph glands, and may be due to ulcer perforation, abscess, concretions, hydatids, cancer, internal hernia, or other pathologic conditions. The acute seizure may occur after well-marked symptoms of disease extending over long periods, or may come on suddenly without premonitory symptoms to indicate the cause; in the former, the diagnosis is, as a rule, more simple, but in the latter it may be most difficult, and sometimes may be impossible without exploration. In nearly every case pain is the prominent symptom, and it is usually associated with rigidity of one or both abdominal recti and with local and general tenderness. In other cases, profound collapse may be the first sign, and the site of the trouble may only be indicated by rigidity of the muscles, by tenderness, and at times, in case of perforation of a hollow viscus, by absence of liver dulness and a thrill obtained on delicate palpation. In the earlier stages the temperature is no guide, though later it may afford valuable information. Pinched features, an anxious expression of countenance, and general distress, are usually seen in acute cases, but are less marked in conditions coming on gradually. Shallow breathing, immobility of the lower ribs and of the abdominal muscles are characteristic of peritonitis in the upper abdomen from whatever cause.

13. **Adenocarcinoma and Fibroids.**—In 200 fibroid tumors of the uterus removed by abdominal hysterectomy by Kerr, malignant degeneration or invasion was present in nearly 5 per cent.

18. **Mammary Cancer.**—Leech has removed the breast and cleared out the axilla in 118 cases. Of these cases 97 were carcinomata; 1 case was a duct papilloma; 11 proved to be cases of chronic mastitis, in 3 of which the microscopic report showed that it was wiser to remove the whole breast, although there were no definite signs of malignancy; 4 proved on microscopic examination to be cystic adenomata, and in 1 of these, the report said it would be wiser to remove the whole breast; 4 proved to be abscess, and 1 was thought to be tuberculosis; 1 (in a very stout woman) was found to be tuberculous mastitis on microscopic examination. Out of these 118 cases, 8 patients died in hospital. Two of these deaths (those due to emphysematous gangrene and femoral thrombosis) were due to sepsis, and ought to have been avoided. The only death which Leech ascribes to the operation itself was the one due to shock. The death-rate for such an extensive operation is, therefore, low, and should not be more than 2 per cent. The operation performed by Leech includes a very extensive dissection from axilla to sternum and from clavicle to epigastrium, no regard being paid to the amount of skin removed.

19. **Treatment of Chronic Duodenal Ulcer.**—Every duodenal case treated by Hort was a derelict of some other method of treatment, and some cases were of 10, 15 and even 20 years' standing. Of these 24—this number not including surgical cases—there have been 2 that showed a very temporary tendency to relapse, and 1 failure, the patient being unable, for domestic reasons, to persevere with the treatment. The relief of pain, hemorrhage, hyperchlorhydria, and dyspepsia has in all cases been most striking. The *rationale* of Hort's treatment is, briefly, as follows:

The absorption of adequate protein in suitable form cannot but increase the resistant powers of the body as a whole to the unknown determining cause of the disease. Moreover, local repair must certainly be assisted thereby. If protein food is presented to a patient with ulcer in which the digestive fluids exhibit a high degree of peptic and tryptic avidity, a certain proportion of these peptic and tryptic molecules will be saturated by the protein. If now, at the height of digestion, be added a serum with a high antipepsin and antitrypsin content, some of the unsatisfied residue of peptic and tryptic bodies will combine therewith, and the ulcer itself thus be indirectly shielded by diversion of these bodies. If an ulcer is constantly being bathed in secretions laden with trypsin and other proteolytic ferments set free from disintegrated leucocytes, other tissue cells, and from bacteria, the administration of a serum charged with antipeptic, antitryptic, and other inhibitory bodies, cannot but have great value. That is to say, the eroding activity of ferments from these sources must to a great extent be kept in check by such serum. The treatment advocated by Hort is: For acute cases, with hemorrhage, subcutaneous injections of sterile normal horse serum and feeding by the mouth at the very earliest opportunity with small dry meals, mainly of meat. For chronic cases, full meat diet in an appropriate form from the start, with repeated oral doses—never on an empty stomach—of an antilytic serum specially prepared.

Clinical Journal, London

December 29

21 *A Vermiform Appendix which Looking Healthy may be Diseased. C. B. Lockwood.
22 Eclampsia in its Physiologic Aspect. H. O. Nicholson.
23 Significant Urinary Reactions. W. L. Brown.

21. **The Appendix.**—If after examining a case of supposed appendicitis the surgeon comes to the conclusion that the sum of the clinical symptoms justifies the operation for removal of the appendix, Lockwood thinks he should not be deterred from the removal of that appendix because its exterior looks normal, for its interior may be seriously diseased.

Practitioner, London

January

24 *Caries Sicca of the Shoulder Joint. Sir W. W. Cheyne.
25 Mortality Returns: Tuberculosis. Sir H. Beevor.
26 Preservation of Health in the Tropics. Sir R. H. Charles.
27 *Value of the Undescended Testicle. J. Bland-Sutton.
28 Anomalies of Internal Secretion—Acromegaly. D. Ferrier.
29 Pathology of Extrauterine Pregnancy. S. Savage.
30 *A Little-Recognized Consequence of Adenoid Growths. E. Smith.
31 Treatment of Cancer of the Cervix Uteri. C. Lockyer.
32 Clinical Study of the Glycogenic Reaction in Blood. W. H. Brown.
33 Pyorrhea Alveolaris, Primary External Periodontal Infection and Oral Sepsis. J. G. Turner.
34 Streptococcal Disease of Middle Ear with Normal Drum and Perfect Hearing. S. Scott.

24. **Caries Sicca of the Shoulder Joint.**—Caries sicca is not accompanied by swelling. It is seldom followed by suppuration and is not accompanied by any thickening of the synovial membrane. The changes which occur are essentially in the bone, which becomes atrophied and thin and eroded, while the cartilage is destroyed over it. The condition may persist for a long time, the patient having constant pain in the joint, especially on movement and pressure, and the joint may be stiff. In the case of the shoulder the deltoid may atrophy, but there is no swelling at all corresponding to that of ordinary tuberculous disease. Further, the patient has constant pain if he lies on the joint and also if he moves it at all, whereas while it is absolutely at rest he has no pain. He has almost complete stiffness of the joint in nearly every direction, and more especially he has suppuration round the joint and an abscess in connection with it.

27. **Value of Undescended Testicle.**—Bland-Sutton points out that the imperfections of an undescended testicle are the cause, not the consequence of its failure to reach its goal in the scrotum. An undescended testicle is more liable to malignant disease than one which is normally lodged in the scrotum. Surgical efforts to preserve a retained, or a partially descended organ, he says, may be described as a supererogation.

30. **Consequence of Adenoid Growths.**—The consequence Smith refers to is the liberal secretion of thick and acrid mucus which is always present when the post-nasal catarrh is of long standing. If in such a case the throat be examined in a good light the mucous membrane at the back of the pharynx will often be seen to be flabby or even velvety-looking, evidently very much thickened and congested. If secretion be copious, thick yellowish mucus may, perhaps, be seen flowing downward at the back of the pharynx, and this causes the patient to make frequent swallowing efforts when the secretion reaches the muscles of deglutition. Two consequences arise from this state of things. The continual passage into the stomach of a quantity of acrid mucus is a cause of gastric derangement, setting up a disturbance which resists treatment with extreme obstinacy until its cause is discovered and the inflow of mucus restrained. Again, the nasopharyngeal irritation is apt to excite a troublesome cough, which may continue for weeks or months, and be accompanied by copious expectoration. These two consequences may occur separately or together. The digestive difficulty may be present without the signs of laryngeal irritation, but it is rare for the cough to be troublesome and secretion free without some evidence being seen of gastric disturbance.

Indian Medical Gazette, Calcutta

December

35 Prostatectomy. E. H. Brown.
36 Typhoid Fever in Infancy. A. F. Hamilton.
37 Delusions in Young People with Special Reference to Those Due to Dementia Paranoids. G. F. W. Ewens.
38 Sporadic Kala-Azar in Behar. F. Mills.
39 Experiences of Micrococcus Catarrhalis Infection. J. R. Roberts.
40 An Outbreak of Cholera. F. W. Sumner.

Bulletin de l'Académie de Médecine, Paris

December 21, LXXIII, No. 42, pp. 483-598

41 Prophylaxis of Typhoid. E. Delorme.
42 *Period of Physical and Mental Depression in Men during the Forties. (Sur le retour d'age de l'homme.) M. de Fleury.
43 Latest Discoveries of Fossil Skeletons. (Les dernières découvertes d'hommes fossiles.)
44 *Characteristic Displacement of the Larynx by Aortic Aneurism. (Du signe de l'abaissement du larynx avec déviation à gauche et en arrière dans l'anévrisme de la crosse de l'aorte.) E. Boinet.

December 28, No. 43, pp. 599-634

45 Inflammatory Tuberculous Processes Responsible for Much Disease of the Thyroid and Defective Functioning. A. Poncet.

42. **"Change of Life" in Man.**—DeFleury has encountered in 201 cases a form of neurasthenia in men approaching fifty in which the nervous and mental symptoms had been preceded for a time by signs of sluggish nutrition, autointoxication and lowered vitality. Among these 201 patients 72, before applying to him, had taken a course of treatment at a sanatorium for their neurasthenia but without avail as treatment had been addressed solely to the mind, and the physical basis for the disturbances had been disregarded. In these cases the psychologic features are subordinate to the physical, this phase of nervous depression during the forties being amenable to medical measures, the mental condition being only the reflection on the mind of a primary physical condition easily demonstrated by the concentration of the urine, the tendency to ptoses, to varices, hemorrhoids, etc., an unusually high blood pressure in the candidates for arteriosclerosis, unusually low in others, with often rebellious eczema, obesity, joints that crack, or a trace of pulmonary emphysema. Psychotherapy is comparatively useless in these cases; treatment should be directed against the autointoxication, and hygiene in all things should be enforced. He is inclined to attribute the whole trouble to insufficiency of the thyroid, and has derived great benefit from thyroid treatment in small and very slowly progressive doses, always under scrupulous supervision. When this is not possible he prefers ordinary tonics, especially subcutaneous injections of salt solution, which act on the blood pressure, stimulating directly the central nervous system, the great regulator of nutrition, and rousing from its torpor the thyroid apparatus which under their influence soon begins to manifest its action.

44. **Displacement of the Larynx with Aneurism of the Aorta.**—Boinet gives an illustrated description of six cases, showing the way in which an aneurism of the aorta is liable to push the trachea backward, downward and toward the left, and thus pull the larynx out of place. This dragging down of the larynx and its deviation to the left and back may, he asserts, be regarded as a reliable sign of aneurism of the aorta.

Lyon Médical, Lyons

December 19, CXIII, No. 51, pp. 1065-1118

46 *Treatment of Uterine Hemorrhage by Clamping the Os. (Nouveau mode de traitement des métrorrhagies.) M. Pollosson.

46. **Treatment of Uterine Hemorrhage by Clamping the Os.**—Pollosson has devised some special clamps for this purpose, the aim being to compress the cervix for some distance above the vagina, thus closing the passage. A small clot forms which effectively arrests the hemorrhage. A forceps with curved fork-like teeth seizes the cervix high up, while exerting pressure below from the parallel blades. The first case in which he applied the forceps occurred in 1886, and he has since used it in 11 other cases. Unless specially informed of the presence of the forceps, the patients are unaware of it and accept it as [illegible] ordinary tampon. The method is for emergencies only although it may prove curative in some instances. His cases were all non-puerperal; he has never ventured to apply the method for puerperal hemorrhage.

Presse Médicale, Paris

December 25, XVII, No. 103, pp. 929-936

47 *High Amputation of the Rectum through the Perineum. H. Hartmann.

December 29, No. 104, pp. 937-944

48 Sero-reaction in Syphilis. Noguchi Modification of Wassermann Reaction. (Séro-réaction dans la syphilis. Méthode de Wassermann modifiée par Noguchi.) L. Deval.

49 *Superheated Air in Acute Postoperative Peritonitis. (L'aérothermothérapie dans le traitement de la septicémie péritonéale aigue post-opératoire.) F. Jayle and H. Dausset.

47. **Amputation of the Rectum.**—Hartmann states that he has had two cases of gangrene of the stump of the rectum after high perineal amputation with ideal healing, and he has also observed cases of recurrence in the pelvic cellular tissue with the rectal mucosa still intact. He has since learned how to avoid these complications, due in part to the fact that the superior hemorrhoidal arteries are practically terminal, without anastomoses; in order to avoid gangrene a ligature should be applied high up on the common trunk, and both ends must be ligated. This requires an abdominal incision. He has applied this combined abdominal perineal technic in six cases, all the patients recovering except one, who succumbed to hemorrhage from neglect to ligate the second branch of the artery as above indicated.

49. **Superheated Air in Acute Peritoneal Septicemia.**—Jayle remarks that if the bowels do not functionate after a laparotomy the outlook is grave, and that the key to success in treatment of postoperative peritoneal septicema is to ensure that the bladder and intestines resume normal action. Nothing has proved so effectual for this in his experience as application of superheated air at 70 or 100 C. (158 or 212 F.). He repeats the application for about 30 minutes 2 or 3 times during the 24 hours, the abdomen being uncovered except for a compress over the wound. After each application the abdomen is packed with hot cotton or compresses dipped in hot serum. He has found that the superheated air has a soothing action while it stimulates the intestines and bladder to normal functioning and the pain subsides. It is possible that the dilatation of the abdominal capillaries promoting diapedesis and the movements of the leucocytes and phagocytosis may all aid in increasing the natural defensive processes. In one case described in detail the temperature kept very high, and the pulse at 145 after removal of a suppurating cyst in the adnexa and the abdomen was becoming more and more distended, without benefit from the knee-chest position for 20 minutes, lavage of the stomach, etc. Conditions began to improve at once after the application of the superheated air. He gives an illustration of the way in which the box is applied to the abdomen.

Revue de Gynécologie, Paris

December, XIII, No. 6, pp. 955-1160

50 The Hymen after Delivery. (L'hymen après l'accouchement.) F. Jayle.
51 *Plastic Utilization of Uterus in Treatment of Genital Prolapse. (Utilisation plastique de l'utérus par inclusion inter-vésico-vaginale dans la cure des prolapsus génitaux.) H. Violet.
52 Bone Formation in Laparotomy Scar. (Développement d'une ossification véritable dans une cicatrice de laparotomie.) P. Lecène.
53 *Abnormal Renal Blood Vessels and their Connection with Hydronephrosis. (Vaisseaux anormaux du rein et l'hydronéphrose.) E. Papin and F. Iglesias.

51. **Plastic Utilization of Uterus in Treatment of Genital Prolapse.**—Violet has recently reexamined 3 patients on whom he performed this operation from 2 to 4 years ago. He found the ultimate results good and describes the technic, in which he followed Wertheim's directions. He also discusses the outcome in 289 other cases on record, the indications, etc., regarding the method as the best yet proposed.

53. **Abnormal Renal Blood Vessels and Their Connection with Hydronephrosis.**—Papin presents a second memoir on this subject, both issuing from Albarran's service. He here discusses the correcting measures and special indications, and gives an illustrated summary of 47 cases, including some personally observed.

Revue de Médecine, Paris

December, XXIX, No. 12, pp. 841-938

54 *Aortic Aneurism. (Le syndrome de Hogdson.) J. Vires and Angiada. Commenced in No. 11.
55 *Pneumonia Attended with Splenization of the Lung. (Splénopneumonies. III.) Mosny and Malloizel.
56 *More Urine Voided Fasting than during Digestion: Opsiuria. (L'opsiurie.) L. A. Amblard.

54. **Aortic Aneurism.**—In treatment, Vires repeats, the aim is to modify the structure of the vessel walls and to combat the injurious influence of their morbid conditions on the heart. Potassium iodid is the main reliance for the first indication unless the cardiac insufficiency is too pronounced, in which case its depressing action on the blood pressure may add an element of danger. Trunecek's serum is theoretically preferable if its efficacy were a little better established. Diuretic measures may also prove useful, and arsenic. If compensation is well maintained the hypertrophy of the heart should be respected, but with failing compensation or signs of mitral and tricuspid insufficiency with pulmonary hypertension, treatment should be that for cardiovascular weakness in general. Mercurial treatment is required for the frequent underlying cause; syphilis is more likely to induce aneurism than regular dilatation of the aorta.

55. **Splenopneumonia.**—This condition seems to be very frequent in acute articular rheumatism but commonly escapes recognition. Mosny remarks that it is really a cortico-pleuritis, and the process is not always painful, resembling in many respects the pleurisy sometimes accompanying typhoid or the second stage of syphilis, but there is more engorgement and condensation and the effusion is more profuse. There is always some rise in temperature, and this should always suggest a complication on the part of the pleura when there is nothing else to explain the fever in acute rheumatism. Auscultation should never be neglected, and if there is egophony, that is, a bleating quality of the voice, there is danger of the development of an extensive effusion, as this seems to be always a sign of pleural edema. Three typical cases are reported in detail, including two with pleuropericarditis. Any infection involving the lungs may induce the syndrome of splenopneumonia. The tubercle bacillus is incriminated in about half the cases. The tuberculous cases are distinguished by slight transient albuminuria and a tendency to mild fever. It is important to bear in mind that tuberculosis is not always a chronic malady, but may manifest itself as a succession of acute or subacute episodes, suggesting mere colds or influenza. These episodes seem to pass over completely with spontaneous recovery, autopsy records showing what a large proportion of persons recover from their tuberculous lesions, unaware of their very existence. Besides the bronchitic pleuropneumonia with splenization and the pleuro-cortical type with effusion, we may encounter the type with tuberculous bacillemia. Each may occur alone or with established tuberculous lesions elsewhere.

56. **Opsiuria as Sign of Liver or Kidney Disease.**—Amblard has noticed that in liver or kidney disease more urine is voided during fasting than during digestion. This is particularly striking when the amount of urine voided within four hours after drinking 600 gm. of water is taken as a test. In health an equivalent amount is voided within this period, but in case of liver or kidney disease less than half this proportion is excreted by the end of the fourth hour. At the same time he has found that even under these conditions a much larger proportion is voided when the patients remain in bed. He practices at a watering place (Vittel), where the diuretic action of the waters is the main curative factor, and in his study of 210 such cases he has learned that it is foolish to attempt to give diuretics to promote the elimination of urine when it is retarded solely or mainly by obstructions in the liver. At the same time, diuretics are able to display much greater effectiveness, even in these conditions, if the patient stays in bed. In case of doubt, he makes a practice of the above test, comparing the elimination of urine afterward when the patient is up and about with that on a day when he stays in bed. By ordering the patients to stay in bed while taking the course of waters, he was able to ward off all disturbances from retention of fluid, especially in arteriosclerosis, without fear of vertigo or other accidents. The bed test reveals incipient liver and kidney disease, while it relieves the healthy of any restrictions in regard to drinking the waters. In some cases of gout the bed test revealed hitherto unsuspected incipient impermeability of the kidneys.

Semaine Médicale, Paris

December 29, XXIX, No. 52, pp. 613-624

57 *Phlegmons in the Iliac Region. (Les phlegmons iliaques.) M. Lejars.

57. **Abscess in Left Iliac Region.**—Lejars reports several cases of diffuse gangrenous phlegmons or low perisigmoiditis or phlegmons below the fascia or an adenophlegmon isolated

in the iliac fossa without glandular lesions below. The latter variety follows some local infection of the leg with lymphangitis, but the groin seems to be skipped by the process, the infectious lesions developing in the external iliac chain. In some of the other cases the causal infection evidently proceeded from the sigmoid flexure. In some of these cases the abscess may not develop until months after the primary lesion, which sometimes was too insignificant to be even remembered—eleven months in one of Desprès' cases. Lejars quotes Dupuytren as the first to describe the appendicitic perforation abscess in 1839, followed by Velpeau's description in 1840 of suppuration in the iliac fossa on either side.

Archiv für Gynaekologie, Berlin

LXXXIX, No. 3, pp. 445-624. Last indexed Jan. 22, p. 326

58 Attempts to Immunize Parturients against Puerperal Infection. (Immunisationsversuche der Kreissenden gegen Puerperalinfection.) A. Czyzewicz.
59 Fourth Case on Record of Frontal Craniopagus. O. Warschauer.
60 *Importance of the Proteolytic Leucocyte Ferment in Lochia and Colostrum, and of Antitrypsin in the Serum of Parturients. G. Jochmann.
61 The Blood Pressure between the Menses. (Verhalten des Blutdruckes zwischen der menstruellen und nicht menstruellen Zeit.) T. Tsuji.
62 Frequency of Obstetric Operations. (Häufigkeit der Geburtshülflichen Operationen.) Id.
63 Anatomy and Origin of Placenta Marginata, with Unusual Margin. R. Meyer.
64 Metabolism of Uterus. (Ueber den Stoffwechsel des Uterus in den verschiedenen Zeiten der sexuellen Thätigkeit.) E. Kehrer.
65 Glands Connected with Clitoris and Prepuce. (Ueber Clitoris- und Präputialdrüsen, besonders beim Menschen und bei einigen Thieren.) T. Boyd.
66 Endothelial Ovarian Tumors. W. Carl.
67 Histogenesis and Growth of Uterine Carcinoma. (Histogenese und Wachsthum des Uteruscarcinoms.) K. Pronai.

60. **Proteolytic Leucocyte Ferment in Lochia and Colostrum.**—Jochmann states that the vaginal discharge after childbirth and the colostrum both contain large amounts of the leucocyte ferment which digests albumin, the proteolytic ferment, as shown by the rapid formation of a groove or dimple in a plate of Loeffler serum where it has been inoculated with the fluid in question. His research has confirmed the fact that the leucocytes contain a bactericidal substance which kills the bacteria incorporated by phagocytosis, and also this proteolytic ferment which digests the dead bodies of the bacteria. He suggests that the digestive action of this ferment may have something to do with the spontaneous separation of the placenta and that it is possible that this accumulation of the ferment in the puerperal uterus and resulting digestion of albumin and its absorption may be responsible for the slight febrile states sometimes observed even in aseptic childbirths. It is also possible that the presence of this albumin-digesting ferment in the colostrum may aid digestion in the infant's stomach. The ferment in the colostrum is probably responsible also for the so-called milk fever, observed when the largest amounts of colostrum are being produced and considerable amounts of the ferment are probably being reabsorbed. The production of the ferment on a comparatively large scale is followed by production of an antiferment, and he presents arguments to sustain the assumption that the antiferment thus produced is practically identical with the pancreas antitrypsin, so that the proportion of antitrypsin in the human blood serum is dependent on the leucocyte ferment as well as on conditions in the pancreas. This may explain the large amounts of antitrypsin he has demonstrated in the serum of parturients. The exceptional amounts of the leucocyte ferment accumulated in the lochia and colostrum are responsible for the production of the antitrypsin or antiproteolytic ferment in such abnormally large proportions during the puerperium.

Beiträge zur klinischen Chirurgie, Tübingen

December, LXV, No. 2, pp. 267-576

68 Obstruction of the Intestines with Valve Formation by a Meckel's Diverticulum. (Ein Meckel'sches Divertikel mit Darmstenose und Ventilverschluss.) H. Coenen.
69 Experimental Peritoneal Adhesions Broken up by Massage. (Schicksal der peritonealen Adhäsionen und ihre Beeinflussung durch mechanische Massnahmen im Tierexperiment.) Uyeno.
70 Osteofibroma of the Upper Jaw. (Osteofibrom des Oberkiefers, eine typische Geschwulst.) Id.
71 Surgery of the Esophagus. M. Tiegel.
72 Perforation of Gastric Ulcer. (Ulcus ventriculi perforatum und seine operative Behandlung.) Steinthal.
73 Fate of Bacteria Entering Lymph Glands by Inhalation or through Cutaneous Lesions. (Verhalten der durch Bakterienresorption inficierten Lymphdrüsen.) W. Noetzel.
74 Experiences with Incarcerated Hernia. (Erfahrungen an 100 eingeklemmten Brüchen.) J. van Assen.
75 Operative Treatment of Tuberculous Spondylitis. W. Neumann.
76 Congenital Ankylosis of Jaws and Elbow. (Zwei seltene Formen von angeborener Gelenkankylose.) G. Ahreiner.
77 Tendon and Fascia Transplantation. (Ueber freie Sehnen- und Fascientransplantation.) M. Kirschner.
78 *Ligation of Hepatic Artery. (Unterbindung der Arteria hepatica.) A. Narath.
79 *Exclusion of Colon by Anastomosis between Ileum and Sigmoid Flexure. (Ausschaltung des Colons durch Vereinigung von Ileum mit Flexura sigmoidea.) G. Hirschel.
80 Operative Treatment of Exstrophy of the Bladder. (Chirurgische Behandlung der Blasenektopie.) P. Dancel.

78. **Ligation of Hepatic Artery.**—Narath reports the details of a case in which he was compelled to ligate the hepatic artery during the removal of a gastric cancer. The ligature was applied to the left branch of the artery and at autopsy a week later the left lobe of the liver was found in extensive necrosis. This is the sixth case on record, he states, in which the hepatic artery has been ligated, and he compares the outcome with experimental research in this line, discussing the anatomy of the liver arteries and the results after ligation of the hepatic artery at different points. His conclusions are that ligation of the common hepatic artery is justified at need if at least one of the collateral routes is uninjured, but that the danger of resulting necrosis should deter the surgeon from ligating the hepatic artery proper or a branch except in case of aneurism. If ligation is necessary on account of operative injury, it should be done as close to the point of injury as possible to avoid shutting off more of the collateral routes than is absolutely necessary. In some cases, however, collateral routes may be so exceptionally well developed that the ligature may be applied without fear of necrosis.

79. **Operative Exclusion of the Colon.**—Hirschel regards this operation as the very last resort, but reports a case in which it gave excellent results, freeing the patient, a woman of 28, from intestinal disturbances of several years' standing, probably due to sagging of the colon and chronic colitis. The fistula in the cecum still persists but causes no annoyance and the patient has gained 20 pounds in the two years since.

Berliner klinische Wochenschrift

December 27, XLVI, No. 52, pp. 2337-2368

81 *Occurrence of Acute Edema of the Lung with Paroxysmal Increase in Blood Pressure. (Vorkommen von akutem Lungenödem zusammen mit paroxysmaler Blutdrucksteigerung.) K. Petren and G. Bergmark.
82 Destructive Effect on Complement of Shaking. (Komplementschädigung durch Schütteln.) J. Zeissler.
83 *Hermaphrodite Children. (Fall von Hermaphroditismus.) P. Marcuse.

81. **Occurrence of Edema of the Lungs with Paroxysmal Increase in the Blood Pressure.**—Petren has observed two cases of aneurism of the aorta in which cardiac asthma seemed to be preceded by an abrupt rise in blood pressure, and this was followed by acute edema of the lungs. He observed the same thing in a case of interstitial nephritis in a man of 58, the blood pressure of 240 mm. during an attack of asthma dropping to 180 mm. afterward, but no edema of the lungs developed. These cases, he declares, confirm his assumption that the acute rise in blood pressure is the cause of the cardial asthma, the distention of the insufficient left ventricle being of subordinate importance. It seems evident that the primal disturbance is some influence on the nervous system interfering with the normal regulation of the correlated vessel tension, heart action and respiration, with an already diseased heart.

83. **Hermaphroditic Children.**—Marcuse, in reference to a case demonstrated, protests against the German legislation which compels the registration of infants as either boys or girls. This may work a hardship later if the first estimation of the sex proves incorrect, as sexual characteristics develop at puberty. He advised the parents in the case in question to bring up the child as a girl, as the transition later is less disturbing if such becomes necessary. The consent of the authorities can then be obtained for the change to boy's clothing and the child can be sent away from home to a boy's school where he is not known. He urges legislation to permit registration of a neutral sex.

Deutsche medizinische Wochenschrift, Berlin

December 30, XXXV, No. 52, pp. 2305-2336

84 *Treatment of Injuries of the Ears. (Behandlung der Ohrverletzungen.) P. Manasse.
85 Tests for Estimation of Functioning of the Intestines. (Zur funktionellen Darmdiagnostik.) T. Brugsch. (Zur Bewertung der Ad. Schmidtschen Kernprobe. Sind die Gewebskerne im Magensaft löslich?) F. W. Strauch.
86 Successful Removal of Spinal Cord Tumor. (Extramedullärer Rückenmarkstumor.) F. Herzog.
87 Autopsy Findings after Firearm Wound of Heart. (Zur Lehre der Herzverletzungen.) K. Halbey.
88 Sterilization of Novocain-Suprarenin Solution. H. Braun.
89 Roentgen-Ray Cure in Two Cases of Vascular Nevi. H. E. Schmidt.
90 *Causes for Failure of Silver Nitrate in Prophylaxis of Ophthalmia Neonatorum. (Zur Beurteilung von Misserfolgen des Credéschen Verfahrens bei Neugeborenen.) W. Feilchenfeld.
91 Explanation of "Buttermilk Fever" in Infants. (Zur Frage des Buttermilchfiebers.) G. Tugendreich.
92 Tschernogubow's Second Modification of the Wassermann Serореaction. H. Guth.
93 Complements in Milk. (Zur Frage der Milchkomplemente.) M. Pfaundler and C. T. Noeggerath.
94 Improved India Ink Technic for Demonstrating Tube Casts. (Darstellung von Urinzylindern mittels des Tuscheverfahrens). K. Stoevesandt.

84. Injury of the Ear.—Manasse discusses mainly the accidents to the ear which the general practitioner is liable to encounter. In case of a bloody or serous collection in the auricle, conservative measures may induce reabsorption, but he prefers to aspirate the fluid with a Pravaz syringe and then push a ball of gauze into the hollow left and apply a compressing bandage. If there is already infection the granulations and necrotic cartilage must be scraped out to check the spread of the perichondritis, as otherwise severe disfigurement may result. He reviews the various injuries that may result from accidents, firearm wounds, etc., but insists that treatment is practically the same for all, namely, absolute abstention from local measures, from rinsing, syringing, probing, etc. The head should be kept at rest and the ear bandaged with dry gauze. Nothing else is necessary unless a bullet needs removal or otitis media develops, in which case the ear may be drained with strips of sterile gauze or 20 per cent. borated glycerin may be instilled. If there is a large perforation of the tympanic membrane, boric acid in substance may be used, and cold water compresses are serviceable in case of violent inflammation. As a rule, however, ordinary perforation of the membrane heals without reaction under strict abstention. It is extremely important to refrain from attempts to syringe out clots of blood after a fracture of the bones of the ear or base of the skull, as otherwise infection may easily be carried into the depths, with otogenous meningitis as the result. He has witnessed recovery under measures solely to promote reabsorption, even when the fracture of the base had induced facial paralysis and severe disturbances in hearing and balance. To hasten absorption he generally injects pilocarpin subcutaneously, commencing with 0.01 gm. (1-6 grain) and increasing by 1 mg. a day to 0.02, and then gradually going back to 0.01 gm. with small doses of potassium iodid. Good results can be anticipated, he says, only when such measures are instituted early, before the extravasation has become organized. In case of injury of the ear the wisest are those whose abstention is most complete.

90. Prophylaxis of Ophthalmia Neonatorum.—Feilchenfeld warns that inflammation developing after instillation of silver nitrate should not be ascribed to irritation from the drug, but should compel immediate microscopic examination of the secretions so as not to overlook already existing gonococcus infection. A single instillation of the nitrate is unable of course to abort this; it should be suspected the more readily if delivery has been unusually protracted.

Medizinische Klinik, Berlin

December 26, V, No. 52, pp. 1959-1982

95 *Epidemic Poliomyelitis. (Spinale Kinderlähmung.) F. Kramer.
96 Infection of the Blood in Febrile Pulmonary Tuberculosis with Cavities. (Infektion der Blutbahn bei fieberhafter kavernöser Lungenphthise.) F. Reiche.
97 *Disturbances after Appendicectomy and their Treatment under Suction Hyperemia. (Beschwerden nach Appendektomie und deren Behandlung.) M. Jerusalem.
98 Operative Treatment of Recurring Phlyctenular Conjunctivitis. (Zur operativen Behandlung der rezidivierenden phlyktänulösen Bindehautentzündung.) Schultz-Zehden.
99 Equivalents in Disease. (Ueber Aequivalente.) H. Stadelmann.

95. Acute Poliomyelitis.—Kramer remarks in the course of this review of recent epidemics that the prognosis in the last few years has changed considerably as the mortality of the disease is proving higher than previously supposed, and also the number of cases of complete recovery. He advocates during the acute phase merely complete rest and mild measures to induce sweating. As the disease develops in two separate phases it is wisest to keep the patients still in bed for a week or two after defervescence. During the phase of paralysis, massage and electric procedures provide the most favorable conditions for recuperation. In the Breslau clinic, where he is assistant, the age in 196 cases ranged from early infancy to 30, each decade being represented, but only 24 of the patients were over 5. The summer months showed the largest number of cases.

97. Treatment of Disturbances After Appendicectomy.—Jerusalem has found extremely effectual the application of a large suction bell, as for Bier's hyperemia, covering the entire iliac fossa region. The nervous and vasomotor disturbances have always yielded at once when this suction was applied for from 10 to 30 minutes. As soon as the skin reddened under the influence of the suction, subjective benefit was soon apparent and the local conditions were evidently much improved. He gives an illustrated report of a few cases, urging that the method should be given a trial instead of the usual treatment commonly accorded these postoperative complaints.

Münchener medizinische Wochenschrift

December 28, LVI, No. 52, pp. 2701-2716

100 *Causes of Uterine Hemorrhage. (Ursachen der Uterusblutungen.) O. Pankow.
101 Hypothesis for Explanation of Exanthem in Measles. (Zur Erklärung des Masernexanthems.) P. Sittler.
102 Family Tendency to Strabismus. (Weiterer Beitrag zur Vererbung des Schielens.) O. v. Sicherer.

100. Causes of Uterine Hemorrhage.—Pankow states that the anatomic changes found in the uterus in so-called chronic metritis and endometritis do not always indicate preceding inflammation. The condition is rather an idiopathic metropathy. Unless inflammation can be demonstrated it is better to drop the term metritis. His findings justify the conclusion that the source of uterine hemorrhage must be sought outside the uterus in many cases. Histologic examination of the ovaries removed in eight cases of uterine hemorrhage showed no difference between them and the ovaries of women free from hemorrhage, of a similar age. This confirmed his assumption that the cause of the hemorrhage is not anatomic changes but a disturbance in the secretory activity of the ovaries, and there is much to sustain the assumption that the true source of the trouble is some disturbance in the physiologic balance of the various glands with internal secretion raising or lowering the blood pressure. Loss of the physiologic balance between the functioning of these various glands would readily explain the tendency to uterine hemorrhage, especially during periods in which the physiologic balance throughout is most unstable, as at puberty and the menopause. This readily explains why hemorrhage may occur in one and not in the other case, with similar anatomic findings in the uterus in both; also why chlorotic girls at puberty may present severe hemorrhage or amenorrhea or normal menses—all these varying manifestations being merely different symptoms of the same underlying affection, a disturbance in the balance between the glands with an internal secretion.

Wiener klinische Wochenschrift, Vienna

December 30, XXII, No. 52, pp. 1813-1844

103 *Cure of Trachomatous Pannus in Six Cases by Inoculation of Gonorrheal Secretion. (Heilung des Pannus trachomatosus durch Einimpfung gonorrhoischen Sekretes.) W. Goldzieher.
104 Suture of Wounds in the Heart. (Erfahrungen und Ansichten über die Naht der Herzwunden.) K. Ewald.
105 Toxic Action of Hematoporphyrin on Warm Blooded Animals Exposed to the Light. (Giftige Wirkung des Hamatoporphyrins auf Warmblutier bei Belichtung.) W. Hausmann.
106 Lack of Pancreatic Ferment in the Stools in Two Cases. (Zwei verschiedenartige Fälle von fehlendem Pankreasferment in den Fäzes.) K. A. Helberg.

103. Treatment of Trachomatous Pannus by Inoculation of Gonorrheal Secretions.—Goldzieher has revived this old method of treatment and has applied it in 6 cases during the last 5

years out of his extensive material at Budapest. The results were good in all cases, the cornea clearing up as the acute gonorrheal process followed the inoculation in 3 days. The improvement has persisted to date in 3 cases described at length, and probably has in the 3 others, although the patients have been lost sight of. The gonorrheal secretion was taken from a new-born infant with ophthalmia neonatorum as less virulent than in the secretions of adults. In future he intends to try attenuated cultures of gonococci for the purpose. He describes his method of transferring the secretion on a glass rod from the infant's eye to that of the patient. The purulent secretion is first wiped away with moist gauze so that only the tear fluid is used. All the patients were already blind from the pannus, and he applied this method only as the last resort after failure of persevering application of all other measures. He is convinced that it is a certain cure, and he emphasizes the fact that the cornea with pannus does not respond to the gonococcus infection in the same way as a normal cornea. The network of vessels brings quantities of protecting substances to the spot so that the process runs a stormy but brief course and heals completely without leaving cicatricial changes. The fact that the granulations vanish without leaving a scar shows that there are means by which the trachomatous granulations can be made to retrogress without leaving the usual scar tissue. This fact suggests the necessity for therapeutic research in this line. To the objection whether it is wise to inoculate a person intentionally with gonorrhea, he asks which the reader would prefer himself, to be totally blind or, with comparatively normal vision to suffer from an eventual gonorrheal arthritis?

Gazzetta degli Ospedali e delle Cliniche, Milan

December 23, XXX, No. 153, pp. 1617-1624

107 *Connection between Mental and Gastric Derangement. (Psicopatie e gastropatie.) S. Vittorangeli.

December 26, No. 154, pp. 1625-1640

108 Eosinophilia Not Constant in Cachectic Aphthæ. (Contributo allo studio della produzione sottolinguale con speciale riguardo all' eosinofilia.) S. De Villa.

December 28, No. 155, pp. 1641-1648

109 Etiology of Sclerema and Anasarca in New-Born Infants. (Etiologia dello sclerema ed anasarca dei neonati.) G. Pisano.

107. Gastric Functions in the Insane.—Vittorangeli reports two cases of hyperchlorhydria developing in the course of melancholia or a manic depressive psychosis. He thinks it probable that the peculiar hyperexcitability of the secretory apparatus of the stomach was the result of cortical influences. In one case the hyperchlorhydria progressed to continuous gastrosuccorrhea.

Policlinico, Rome

December, XVI, Medical Section, No. 12, pp. 525-568

110 *Improved Therapeutic Hemostasis. (L'azione di alcuni emostatici sulla coagulazione del sangue.) P. Ciuffini.

111 Wassermann Reaction in Leprosy. (La sierodiagnosi di Wassermann nella lepra.) A. Serra.

112 The Conjunctival Tuberculin Test for Diagnosis and Prognosis. (La fisiopatologia della reazione congiuntivale alle tubercolina.) N. Pende.

110. Research on Therapeutic Hemostasis.—Ciuffini has been testing on an extensive scale gelatin, calcium chlorid and ferric chlorid as means to hasten coagulation of the blood, in research at Baccelli's medical clinic at Rome. He found that gelatin promotes coagulation but loses this property if heated to 130 or 135 C. (266 or 275 F.) for half an hour. Sterilization of the gelatin thus renders it inefficient in this respect. By the mouth or rectum, after heating to 100 C. (212 F.), no effect on the coagulation was perceptible. Calcium chlorid had only a slight effect in this line. Ferric chlorid by the mouth has nearly as marked an effect as gelatin subcutaneously, but other iron preparations were inefficient. A combination of gelatin and ferric chlorid proved exceptionally effectual, the result inferior only to that induced by non-sterilized gelatin injected subcutaneously. Coagulation is notably hastened and increased and this effect persists for more than twenty-four hours, while with the gelatin alone the effect is much less lasting. He uses a concentrated solution of acacia, mixing it with ferric chlorid, both previously sterilized separately, and injected subcutaneously. There was no local disturbance or reaction of any kind. The compound resulting from their combination being apparently harmless, he prophesies a future for this mixture in operative and other hemostasis.

Norsk Magazin for Lægevidenskaben, Christiania

January, LXXI, No. 1, pp. 1-208

113 *Case of Fatal Paratyphoid Jaundice. (Et tilfaelde af infektiøs ikterus.) O. Scheel.

114 Development of Surgery in Norway. (Fra gamle dage.) I. Reichborn-Kjennerud.

115 *Bone Formation in Penis and its Successful Removal. (Et tilfælde af bendannelse i penis.) H. L. C. Huitfeldt.

116 Two Cases of Volvulus of Entire Small Intestine. (Volvulus af hele tyndtarmen og dens mesenterium.) H. Wille.

117 *Wassermann Reaction in the Cadaver. (Ligsera og den Wassermann'ske syfilisreaktion.) R. Krefting.

113. Case of Fatal Paratyphoid Jaundice.—Scheel's patient was a man of 46, who died after 3 weeks of an infectious jaundice; a paratyphoid bacillus could be cultivated from the blood during life and from the liver, spleen, etc., postmortem. He thinks it probable that many cases of so-called catarrhal icterus are in reality a general infection with secondary localization in the biliary apparatus. Histologic examination of the liver capillaries in his case showed minute foci of necrosis, and these were probably responsible for the stagnation of bile and consequent resorption.

115. Patch of Ossification in the Penis.—Huitfeldt reports a case in which a hard lump in the penis near the root was removed. It proved to be a fibrous and bony formation, the lump measuring 4 by 18 by 26 mm. It was in the outer envelop of the corpora cavernosa and shelled out easily under local anesthesia. It had been noticed first about six months before. Complete cure from all disturbances followed and has persisted during the two years and more to date. Huitfeldt has found only 6 cases on record of this formation of a patch of bone tissue in the penis, removed by an operation, although over 50 cases have been reported of fibrous induration for which no traumatic or other cause could be discovered. Attempts to induce resolution of such indurations have not proved very encouraging, and operative treatment has not always proved successful. The operative injury to the corpora cavernosa has frequently caused severe functional disturbance, and recurrence of the induration has been observed in some cases.

117. Seroreaction in the Cadaver.—Krefting obtained conflicting findings in 100 cadavers examined, as also Bruck, in a large number, demonstrating anew that the specific seroreaction in syphilis is a strictly biologic phenomenon.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

OPHTHALMIC SURGERY. A Treatise on Surgical Operations Pertaining to the Eye and its Appendages, with Chapters on Para-Operative Technic and Management of Instruments. By Charles H. Beard, M.D., Surgeon to the Illinois Charitable Eye and Ear Infirmary. Cloth. Pp. 674, with 9 plates and 300 other illustrations. Price, $5. Philadelphia: P. Blakiston's Son & Co., 1910.

DIGEST OF COMMENTS ON THE PHARMACOPEIA OF THE UNITED STATES OF AMERICA (EIGHTH DECENNIAL REVISION), AND THE NATIONAL FORMULARY (THIRD EDITION), for Year ending Dec. 31, 1906. By Murray Galt Motter and Martin I. Wilbert. Paper. Pp. 523. Hygienic Laboratory Bulletin No. 58. Washington: Government Printing Office, 1909.

NATURAL SALVATION (SALVATION BY SCIENCE): Immortal Life on the Earth from the Growth of Knowledge and the Development of the Human Brain. By Charles Asbury Stephens, M.D. Cloth. Pp. 157, with illustrations. Sixth edition. Price, $1.75. Norway Lake, Me.: The Laboratory. 1910.

MILK AND ITS RELATION TO THE PUBLIC HEALTH. By Various Authors. Hygienic Laboratory Bulletin No. 56. (Revised and enlarged edition of Bulletin No. 41.) Paper. Pp. 829, with 66 illustrations. Washington: Government Printing Office, 1909.

QUACKS, FALSE REMEDIES AND THE PUBLIC HEALTH. By David Walsh, M.D., Senior Physician, Western Skin Hospital, London, W. Cloth. Pp. 80. Price, 1 shilling 6 pence net. London: Baillière, Tindall and Cox, 1909.

PROCEEDINGS OF THE NORTH DAKOTA PHARMACEUTICAL ASSOCIATION. Twenty-fourth Annual Meeting, held at Grand Forks Aug. 3-5, 1909. Paper. Pp. 181. Price, 50 cents. W. S. Parker, Secretary, Lisbon, N. Dak.